

Server Technology

Server Technology

JSON API Web Service (JAWS) V1.07



2023

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Server Technology JSON API Web Service (JAWS)

JSON API Web Service (JAWS) Overview

This document defines the JSON API Web Service (JAWS) interface to access, configure, control and monitor Server Technology Power Distribution Units (PDU). This Application Programming Interface (API) conforms to the principles of the Representational State Transfer (REST) architectural style.

Server Technology's JAWS interface is divided into several sections such as configuration, control, and monitor data. Each section is addressable through a published Uniform Resource Identifier (URI) using standard Hypertext Transfer Protocol (HTTP) methods. The interface leverages four methods (*GET*, *PATCH*, *POST* & *DELETE*) to interact with resources. The data interchange format supported by this API is JavaScript Object Notation (JSON).

This is a secure interface that can only be accessed via HTTPS. PDU communication to this interface is provided by a URL in the form of **https://<PDU server address>/jaws**

JavaScript Object Notation (JSON)

JSON is used in API data requests and responses using the HTTP methods listed above. Each resource URI in this API defines a specific set of properties using standard JSON types. This API also enforces additional constraints on certain JSON types:

- **Objects:** may only be nested one level in a resource or 2 levels in a resource collection.
- **Numbers:** must be within the range and precision defined by the property.
- **Strings:** must not exceed the maximum (encoded) length defined by the property AND must contain only ASCII printable characters, except where noted. Some strings have a no space requirement or special format requirement.
- **Arrays:** must not be nested and must contain delimited strings or primitive numbers.

General PDU Limitations:

- String encoded tabs, backspaces, form feeds and Unicode are not supported.
- Exponential numbers are not supported.
- Nested arrays or arrays of objects are not supported.
- Maximum object depth is 2.

Some JSON properties are optional and do not change existing settings (ignored). Others are read or write only. Specific property requirements are defined in the API under each URI definition. For a more detailed description of JSON format, consult RFC 7159.

Uniform Resource Identifier (URI) Access

Published JAWS URI paths and resource ID's must be encoded as per RFC2396. Only encode characters specifically mentioned by the RFC.

Version Numbers

Published JAWS version numbers are referenced in this document to indicate when a particular URI or feature was implemented. Our philosophy is to maintain backward compatibility with newer protocols. However, a tailored JAWS client or user may consider using the agent's version number to accurately filter URI's that were not available in earlier versions.

Security

Legal restrictions require Server Technology to enforce certain data access restrictions when a new / factory reset PDU is provided to a customer with a default administrator and password. In this mode, all JAWS URI read actions are rejected (Not Found) except for a limited number of objects in **/jaws/config/info/system** needed for remote provisioning. All JAWS URI writes are rejected as well except for PATCH on the default administrator account at **/jaws/config/users/local**. Once the administrator password has been changed, the system will allow standard JAWS read / write access.

HTTP Methods for Configuring Resources

Not all configuration resources support the four main **Hyper Text Transfer Protocol (HTTP)** methods.

Each resource has a section called **HTTP Supported Methods** that lists the methods it support.

HTTP GET

Requests

A resource can be retrieved by using the *GET* method with its **Uniform Resource Identifier (URI)**. Some resources belong to a collection, while some resources exist as a singleton.

For singleton resources, the URI looks something like:

```
/jaws/config/<resource>  
/jaws/control/<resource>  
/jaws/monitor/<resource>
```

For resource collections, each resource in the collection can be retrieved in one request, using the *GET* method with the collection's URIs:

```
/jaws/config/<resource collection>  
/jaws/control/<resource collection>  
/jaws/monitor/<resource collection>
```

To get the configuration of only one known resource in a collection, simply append its identifier to the collection's URIs:

```
/jaws/config/<resource collection>/<resource ID>  
/jaws/control/<resource collection>/<resource ID>  
/jaws/monitor/<resource collection>/<resource ID>
```

Responses

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For requests made for a singleton resource or a specific resource in a collection, the response JSON message has the format:

```
{
  "<property 1>": "<value>",
  "<property n>": "<value>"
}
```

For requests for resource collections with N elements, the response JSON message has the format:

```
[
  {
    "id": "<resource ID1>",
    "<property 1>": "<value>",
    "<property n>": "<value>"
  },
  ...,
  {
    "id": "<resource IDN>",
    "<property 1>": "<value>",
    "<property n>": "<value>"
  }
]
```

A specific resource in a collection has the same form as one of the resource elements in the JSON message above.

One of the following HTTP status codes is sent in response to a request.

| Status Code | Description |
|-------------------------|--|
| 200 OK | Response contains JSON object with requested data |
| 404 NOT FOUND | Requested resource does not exist or is unavailable |
| 405 METHOD NOT ALLOWED | Requested method was not permitted |
| 503 SERVICE UNAVAILABLE | The server is too busy to send the resource or resource collection |

HTTP PATCH

Requests

PATCH requests are used to make partial updates to a resource. If only one property of a resource needs to be changed, then a *PATCH* request can be used to update only that property. Not all properties can be updated – see each resource for which properties cannot be updated with *PATCH*.

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To partially update an object, messages are formatted with JSON Patch, as defined in IETF RFC 6902. Patch documents a simple JSON files containing an array of patch operation objects. The only JSON Patch Operation supported by this API is *replace*. Operations are applied in order: if any of them fail, the whole patch operation aborts. See Appendix A for an example of using *PATCH* to update a configuration resource.

JSON Patch

To replace the value of one or more properties of a resource, use the resource's URI:

```
/jaws/config/<resource>  
/jaws/control/<resource>
```

or a specific ID/name of a resource collection

```
/jaws/config/<resource collection>/<resource ID>  
/jaws/control/<resource collection>/<resource ID>
```

The patch *replace* operation replaces existing properties with new values.

```
{  
  "<property 1>": "<value>",  
  "<property n>": "<value>"  
}
```

If the operation object has a member that is not one of the three defined here, it is simply ignored.

Responses

| Status Code | Description |
|-------------------------|---|
| 204 NO CONTENT | Acknowledges that update was successful |
| 400 BAD REQUEST | Malformed patch document; a required patch object member is missing OR an unsupported operation was included. |
| 404 NOT FOUND | Requested resource does not exist or is unavailable |
| 405 METHOD NOT ALLOWED | Requested method was not permitted |
| 409 CONFLICT | Property specified for updating does not exist in resource |
| 503 SERVICE UNAVAILABLE | The server is too busy to update the resource |

HTTP POST

Requests

It is possible to create a new resource for dynamic resource collections, such as users and outlet groups. To create a new resource in a dynamic collection, use the *POST* method with the resource collection URI:

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```
/jaws/config/<resource collection>/<resource ID>
```

Responses

On success, the URI of the new resource is returned in the *Location* header of the HTTP response.

| Status Code | Description |
|--------------------------------|--|
| 201 <i>CREATED</i> | Resource created successfully. |
| 400 <i>BAD REQUEST</i> | Message contained either bad values (e.g. out of range) for properties, or non-existent properties |
| 404 <i>NOT FOUND</i> | Requested resource collection does not exist or is unavailable |
| 405 <i>METHOD NOT ALLOWED</i> | Requested method was not permitted |
| 409 <i>CONFLICT</i> | Requested resource already exists |
| 503 <i>SERVICE UNAVAILABLE</i> | The server is too busy to create the resource |

HTTP DELETE

Requests

It is not possible to delete a singleton resource or an entire collection of resources. It is possible to delete a resource that was created for a dynamic collection. To delete a previously created resource, use the specific resource's URI with the *DELETE* method.

```
/jaws/config/<resource collection>/<resource ID>
```

Responses

| Status Code | Description |
|--------------------------------|---|
| 204 <i>NO CONTENT</i> | Resource was deleted successfully |
| 400 <i>BAD REQUEST</i> | Message contained data (must be empty) |
| 403 <i>FORBIDDEN</i> | Resource cannot be deleted |
| 404 <i>NOT FOUND</i> | Requested resource does not exist or is unavailable |
| 405 <i>METHOD NOT ALLOWED</i> | Requested method was not permitted |
| 503 <i>SERVICE UNAVAILABLE</i> | The server is too busy to delete the resource |

Configuration API

Available only to authenticated system administrators.

(V1.00) access

Defines user access settings.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI:

```
/jaws/config/access
```

Resource Properties

| Property | Description |
|-----------------------------|--|
| access_method | ASCII string defining the system access method. ASCII string values: ldap only ldap then local local only radius then local radius only tacacs then local tacacs only |
| configuration_reset_button | ASCII string enabling or disabling the configuration button. When disabled, forces local administrator account to be required. If no local administrator accounts present, it is forced to enabled to allow system recovery. ASCII string values: disabled enabled |
| default_log_order | Defines the dated log listing order. ASCII string values: newest first oldest first |
| local_administrator_account | Removes the restriction to delete the last local admin when set to optional. Also forces configuration reset button to be enabled to allow system recovery when set to optional. ASCII string values: optional required |
| firmware_downgrade | ASCII string defining the firmware downgrade method. If set to once , then the setting will change to disabled after the next firmware update attempt. ASCII string values: disabled enabled once |
| startup_stick | Enables or disables Start Up Stick access. ASCII string values: disabled enabled |
| strong_passwords | Enables or disables strong password requirement. ASCII string values: disabled enabled |

(V1.00) banner

Defines the PDU login banner.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI:

```
/jaws/config/banner
```

Resource Properties

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| Property | Description |
|----------|---|
| message | ASCII string defining the banner message to be displayed on PDU logins. The message may not exceed 2070 printable ASCII characters. ASCII control characters for new line and carriage return are allowed. |

(V1.00) branches

Defines specific branch settings. Available only if branches are present. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/branches
```

Indexed Resource URI:

```
/jaws/config/branches/<branch id>
```

Resource Properties

| Property | Description |
|-------------------------|---|
| id | ASCII string of 3 to 4 character branch id in the form: <unit id><cord id><branch number> . This property is Read Only |
| current_thresholds | Array of floating point numbers in the order [<low alarm>,< low warning>,<high warning>,<high alarm>] ranging from 0.0 to the maximum rated branch current in tenth (Amp) increments. Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if branch current sensing is present. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |

(V1.00) branches-global

Defines global branch settings. Available only if branches are present.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/branches-global
```

Resource Properties

| Property | Description |
|--------------------|--|
| current_hysteresis | Floating point number ranging from 0.0 to 10.0 in tenth (Amp) increments. Available only if branch current sensing is present. |

Server Technology JSON API Web Service (JAWS)

(V1.00) cli

Defines Command Line Interface (CLI) settings, including Secure Shell (SSH) and Telnet.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/cli
```

Resource Properties

| Property | Description |
|---------------------------|---|
| custom_prompt | ASCII string of 0 to 32 characters. The default prompt is used if this is blank. |
| session_timeout | Idle CLI session timeout. Integer ranging from 1 to 1440 (minutes). |
| ssh | Enables or disables Secure Shell (SSH). A change to this property requires a restart. ASCII string values: disabled enabled |
| ssh_authentication_method | Defines the SSH authentication method. ASCII string values: keyboard and password keyboard only password only |
| ssh_port | Integer ranging from 1 to 65535. A change to this property requires a restart if SSH is enabled. |
| telnet | Enables or disables Telnet. A change to this property requires a restart. ASCII string values: disabled enabled |
| telnet_port | Integer ranging from 1 to 65535. A change to this property requires a restart if Telnet is enabled. |

(V1.00) cords

Defines specific cord settings. Available only if cords are present. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/cords
```

Indexed Resource URI:

```
/jaws/config/cords/<cord id>
```

Resource Properties

| Property | Description |
|----------|---|
| id | ASCII string of 2 characters in the form <unit id><cord number> . This property is Read Only |
| name | ASCII string from 0 to 32 characters. Spaces are not allowed . Value cannot be ALL , a duplicate resource name or a reserved resource ID. Value may be blank. |

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| | |
|----------------------------------|--|
| apparent_power_thresholds | Array of 4 integers in the order [<low alarm> , <low warning> , <high warning> , <high alarm>] ranging from 0 to the maximum rated cord apparent power (VA). Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if AC cord power sensing is present. |
| current_capacity | Integer ranging from 1 to the maximum rated cord (Amp) capacity. The capacity for the cord is used to compute threshold limits. The maximum capacity is unit specific and varies between models. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| nominal_power_factor | Floating point number ranging from 0.00 to 1.00 in hundredth increments. The nominal power factor of the cord for legacy AC TRMS units is used to tune estimated power calculations. Available only if AC TRMS load sensing is present. |
| nominal_voltage | Integer ranging between the minimum rated cord voltage to the maximum rated cord voltage (Volts). Nominal voltage for the cord is used to compute threshold limits. These limits are unit specific and vary between models. |
| three_phase_imbalance_thresholds | Array of 2 integers in the order: [<high warning> , <high alarm>] ranging from 0 to 200 (percent). Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if 3-phase AC cord current sensing is present. |
| power_factor_thresholds | Array of floating point numbers in the order: [<low alarm> , <low warning>] ranging from 0.00 to 1.00 in hundredth increments. Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if AC cord power sensing is present. |
| power_thresholds | Array of integers in the order [<low alarm> , <low warning> , <high warning> , <high alarm>] ranging from 0 to the maximum rated cord power (Watts). Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if cord power sensing is present. |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |

(V1.00) cords-global

Defines global cord settings. Available only if cords are present.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/cords-global
```

Resource Properties

| Property | Description |
|---------------------------|--|
| apparent_power_hysteresis | Integer ranging from 0 to 1000 (VA). Available only if AC cord power |

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| | |
|---------------------------|--|
| | sensing is present. |
| out_of_balance_hysteresis | Integer ranging from 0 to 10 (percent). Available only if 3-phase AC cord current sensing is present. |
| power_factor_hysteresis | Floating point number ranging from 0.00 to 0.20 in hundredth increments. Available only if AC cord power sensing is present. |
| power_hysteresis | Integer ranging from 0 to 1000 (Watts). Available only if cord power sensing is present. |

(V1.00) data-trending

Defines data trending options.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/data-trending
```

Resource Properties

| Property | Description |
|----------|---|
| feature | Enables or disables data trending. ASCII string values: disabled enabled |

(V1.00) email

Defines email and Simple Mail Transport Protocol (SMTP) settings.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/email
```

Resource Properties

| Property | Description |
|-----------------------------|--|
| from_address | ASCII string from 0 to 48 characters defining the sender's address. |
| log_authentication_messages | Enables or disables authentication log messages when email notifications are enabled. ASCII string values: disabled enabled |
| log_configuration_messages | Enables or disables configuration log messages when email notifications are enabled. ASCII string values: disabled enabled |
| log_event_messages | Enables or disables event log messages when email notifications are enabled. String values: disabled enabled |
| log_power_messages | Enables or disables power change log messages when email notifications are enabled. ASCII string values: disabled enabled |
| notifications | Enables or disables log message notifications. ASCII string values: disabled enabled |
| primary_to_address | ASCII String from 0 to 48 characters defining the primary recipient's |

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| | |
|----------------------------|--|
| | address. |
| secondary_to_address | ASCII String from 0 to 48 characters defining the secondary recipient's address. |
| smtp_authenticate_with | Defines the credentials SMTP should use for authentication. ASCII string values: from address username |
| smtp_authentication_method | Defines the SMTP authentication method. ASCII string values: any cram-md5 digest-md5 login plain none |
| smtp_host | ASCII string from 0 to 63 characters defining the SMTP server host name. Spaces are not allowed . |
| smtp_password | ASCII plain text SMTP password string from 0 to 32 characters. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| smtp_password_secure | ASCII string that is either blank (empty) or a 64 character AES256 encrypted hex string that can be read and re-written to other units. |
| smtp_port | Integer ranging from 1 to 65535. |
| smtp_username | ASCII string from 0 to 32 characters defining the SMTP server user name. May require JSON escaped quotes. Spaces are not allowed . |
| subject_id | Defines the unique system identification string used in the email subject. ASCII string values: location system id |
| trend_file_attachments | Enables or disables trend file attachments when email notifications are enabled. ASCII string values: disabled enabled |

(V1.00) ftp

Defines File Transfer Protocol (FTP) client and server settings.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/ftp
```

Resource Properties

| Property | Description |
|-------------------------------|---|
| client_automatic_updates | Enables or disables FTP client updates. ASCII string values: disabled enabled |
| client_update_directory | ASCII string from 0 to 64 characters defining a valid path name to the FTP client update directory. |
| client_update_filename | ASCII string from 0 to 32 characters defining the name of the update file in the FTP client update directory. |
| client_update_host | ASCII string from 0 to 63 characters defining the host name of the FTP client update. Spaces are not allowed . |
| client_update_password | ASCII plain text FTP client update password string from 0 to 32 characters. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| client_update_password_secure | ASCII string that is either blank (empty) or a 64 character AES256 encrypted hex string that can be read and re-written to other units. |
| client_update_scheduled_day | Defines the FTP client update scheduled day. ASCII string values: Sunday Monday Tuesday wednesday Thursday Friday Saturday Everyday |
| client_update_scheduled_hour | Defines the FTP client update scheduled hour. ASCII string values: |

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| | |
|------------------------|--|
| | 12 am 1 am 2 am 3 am 4 am 5 am 6 am 7 am 8 am 9 am 10 am 11 am 12 pm 1 pm 2 pm 3 pm 4 pm 5 pm 6 pm 7 pm 8 pm 9 pm 10 pm 11 pm |
| client_update_username | ASCII string from 0 to 32 characters defining the FTP client update user name. JSON escaped quotes may be required. |
| server | Enables or disables the FTP server. A change to this property requires a restart. ASCII string values: disabled enabled |

(V1.00) groups

Defines settings for creating and managing outlet group access lists. The global resource URI will return an empty list if no outlet groups have been defined. This is a dynamic resource collection. Refer to specific PDU documentation for the maximum number of outlet groups supported.

HTTP Supported Methods: *GET, PATCH, POST, DELETE*

Global Resource URI (GET only):

```
/jaws/config/groups
```

Indexed Resource URI:

```
/jaws/config/groups/<group name>
```

Resource Properties

| Property | Description |
|---------------|---|
| name | ASCII string of 1 to 32 characters defining the outlet group name. JSON escaped quotes may be required. Creating a duplicate outlet group is not permitted. This property is Read Only |
| outlet_access | Array of strings, where each string is an outlet ID that the outlet group has access to. To exclude an outlet, leave it out of the array. a11 may be specified to give the group full access to all outlets in the system. |

(V1.00) ldap

Defines LDAP network configuration settings.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI:

```
/jaws/config/ldap
```

Resource Properties

| Property | Description |
|----------------------------|--|
| bind_type | Defines LDAP bind type. ASCII string values: md5 simple tls |
| group_membership_attribute | String of 0 to 30 characters. |

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| | |
|--------------------------------------|--|
| group_search | Enables LDAP user group searches. ASCII string values: disabled enabled |
| group_search_base_distinguished_name | String of 0 to 100 characters. |
| port | Integer ranging between 1 and 65535. |
| primary_host | String of 0 to 63 characters. Spaces are not allowed . |
| search_bind_distinguished_name | String of 0 to 124 characters. |
| search_bind_password | ASCII plain text LDAP search bind password string from 0 to 32 characters. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| search_bind_password_secure | ASCII string that is either blank (empty) or a 64 character AES256 encrypted hex string that can be read and re-written to other units. |
| secondary_host | String of 0 to 63 characters. Spaces are not allowed . |
| user_membership_attribute | String of 0 to 61 characters. |
| user_search_base_distinguished_name | String of 0 to 100 characters. |
| user_search_filter | String of 0 to 100 characters. |

(V1.00) lines

Defines specific line settings for the PDU. Available only if lines are present.

This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/lines
```

Indexed Resource URI:

```
/jaws/config/lines/<line id>
```

Resource Properties

| Property | Description |
|-------------------------|---|
| id | ASCII string of 3 characters in the form <unit id><cord id><line number> . This property is Read Only |
| current_thresholds | Array of floating point numbers in the order [<low alarm>,< low warning>,<high warning>,<high alarm>] ranging from 0.0 to the maximum rated line current in tenth (Amp) increments. Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if line current sensing is present. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |

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(V1.00) lines-global

Defines global line settings. Available only if lines are present.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/lines-global
```

Resource Properties

| Property | Description |
|--------------------|---|
| current_hysteresis | Floating point number ranging from 0.0 to 10.0 in tenth (Amp) increments. |

(V1.01) lldp

Defines Link Layer Discovery Protocol (LLDP) settings.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/lldp
```

Resource Properties

| Property | Description |
|-------------------|---|
| feature | Enables or disables LLDP advertising. A change to this property requires a restart. ASCII string values: disabled enabled |
| transmit_interval | Integer ranging from 5 to 32768 (seconds). This is the interval which LLDP frames are transmitted on behalf of the agent. |

(V1.00) network

Defines network settings. Many of these settings are system specific.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/network
```

Resource Properties

| Property | Description |
|-----------------|--|
| dhcp | Enables or disables DHCP. A change to this property requires a restart if the desired network mode is not disabled. ASCII string values: disabled enabled |
| dhcp_boot_delay | When enabled, tells the PDU to wait approximately 90 seconds to establish a connection through a DHCP server on startup. This allows various network interactions to succeed as the PDU powers up, such as generating SNMP startup traps or receiving SNTP time. Disabling |

Server Technology JSON API Web Service (JAWS)

| | |
|------------------------------|--|
| | this forces a fast boot around 5 seconds before attempting to turn on outlets. This is because the DHCP server itself may be connected to one of the PDU's outlets. If the DHCP server boot time is excessive, this option should be disabled. ASCII string values: disabled enabled |
| dhcp_fqdn | Enables or disables DHCP Fully Qualified Domain Name (FQDN) for the system. A change to this property requires a restart if DHCP is desired. ASCII string values: disabled enabled |
| dhcp_fqdn_name | String of 0 to 63 characters defining a valid DHCP Fully Qualified Domain Name for the system. A change to this property requires a restart if DHCP is desired and FQDN is enabled. |
| dhcp_static_address_fallback | When enabled, tells the PDU to automatically fall back to a static address if a DHCP server does not respond within 90 seconds. Disabling this option will periodically make DHCP requests forever until the PDU obtains a dynamic address. A change to this property requires a restart if DHCP is desired. ASCII string values: disabled enabled |
| network_mode | Defines the preferred network configuration mode. A change to this property requires a restart. ASCII string values: disabled dual ipv6/ipv4 ipv4 only ipv6 only |
| static_ipv4_address | An IPv4 string of 7 to 15 characters defining the static IP address. A change to this property requires a restart if static addresses are desired (DHCP disabled) or DHCP static fallback is enabled. |
| static_ipv4_gateway | An IPv4 string of 7 to 15 characters defining the static gateway address. A change to this property requires a restart if static addresses are desired (DHCP disabled) or DHCP static fallback is enabled. |
| static_ipv4_subnet_mask | An IPv4 string of 7 to 15 characters defining the static subnet mask. A change to this property requires a restart if static addresses are desired (DHCP disabled) or DHCP static fallback is enabled. |
| static_ipv6_address | A valid IPv4 or IPv6 (RFC4291) string of 2 to 45 characters defining the static IP address. A change to this property requires a restart if static addresses are desired (DHCP disabled) or DHCP static fallback is enabled. |
| static_ipv6_gateway | A valid IPv4 or IPv6 (RFC4291) string of 2 to 45 characters defining the static gateway address. A change to this property requires a restart if static addresses are desired (DHCP disabled) or DHCP static fallback is enabled. |
| static_ipv6_prefix | Value can be an integer from 0 to 128 or a standard CIDR string of /0 to /128 defining the static IPv6 address prefix. A change to this property requires a restart if static addresses are desired (DHCP disabled) or DHCP static fallback is enabled. |
| static_primary_dns | Value is a valid IPv4 or IPv6 (RFC4291) string of 2 to 45 characters defining the primary IPv4/IPv6 DNS address. |
| static_secondary_dns | Value is a valid IPv4 or IPv6 (RFC4291) string of 2 to 45 characters defining the secondary IPv4/IPv6 DNS address. |
| zero_touch_provisioning | Enables or disables zero touch provisioning via DHCP option 43 requests. A change to this property requires a restart if DHCP is desired. ASCII string values: disabled enabled |

(V1.00) outlets

Defines specific outlet settings. Available only if outlets are present. This is a static resource collection.

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HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/outlets
```

Indexed Resource URI:

```
/jaws/config/outlets/<outlet id>
```

Resource Properties

| Property | Description |
|-------------------------|---|
| id | ASCII string of 3 to 5 characters in the form <unit id><cord id><outlet number> . This property is Read Only |
| name | String of 0 to 32 characters. Spaces are not allowed . Value cannot be ALL , a duplicate resource name or a reserved resource ID. Value may be blank. |
| control_lock | Enables or disables user outlet control. Any attempt to change this setting for a non-switched outlet will be ignored. Available only if the outlet can be switched. ASCII string values: disabled enabled |
| current_thresholds | Array of floating point numbers in the order [<low alarm>,< low warning>,<high warning>,<high alarm>] ranging from 0.0 to the maximum rated outlet current in tenth (Amp) increments. Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if per outlet current sensing is available. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| extra_on_delay | Integer ranging from 0 to 900 (seconds). Any attempt to change this setting for a non-switched outlet will be ignored. Available only if the outlet can be switched. |
| host | String of 0 to 63 characters defining the shutdown host name of this outlet. Spaces are not allowed . Any attempt to change this setting for a non-switched outlet will be ignored. Available only if the outlet can be switched. |
| power_factor_thresholds | Array of floating point numbers in the order: [<low alarm>,<low warning>] ranging from 0.00 to 1.00 in hundredth increments. Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if AC per outlet power sensing is available. |
| power_thresholds | Array of integers in the order [<low alarm>,< low warning>,<high warning>,<high alarm>] ranging from 0 to the maximum rated cord power (Watts). Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if per outlet power sensing is present. |
| script_delay | Integer ranging from 1 to 15 (minutes). Any attempt to change this setting for a non-switched outlet will be ignored. Available only if the outlet can be switched. |
| script_feature | Enables or disables the outlet script feature. Any attempt to change this setting for a non-switched outlet will be ignored. Available only if the outlet can be switched. ASCII string values: disabled enabled |
| shutdown_delay | Integer ranging from 1 to 900 (seconds). Any attempt to change this setting for a non-switched outlet will be ignored. Available only if the outlet can be |

Server Technology JSON API Web Service (JAWS)

| | |
|-------------------------|--|
| | switched. |
| shutdown_feature | Enables or disables the outlet shutdown feature. Any attempt to change this setting for a non-switched outlet will be ignored. Available only if the outlet can be switched. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |
| socket_adapter | User selectable outlet adapter configuration for HDOT or Cx outlets. This property is only available when auto detection is unavailable. ASCII string values: none c13 c19 |
| wakeup_state | Defines the outlet wakeup state on startup. Any attempt to change this setting for a non-switched outlet will be ignored. Available only if the outlet can be switched. ASCII string values: last off on |

(V1.00) outlets-global

Defines global outlet settings. Available only if outlets are present.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/outlets-global
```

Resource Properties

| Property | Description |
|-------------------------|--|
| change_logging | Enables or disables outlet change logging. ASCII string values: disabled enabled |
| current_hysteresis | Floating point number ranging from 0.0 to 10.0 in tenth (Amp) increments. Available only if per outlet current sensing is available. |
| power_factor_hysteresis | Floating point number ranging from 0.00 to 0.20 in hundredth increments. Available only if AC per outlet power sensing is available. |
| power_hysteresis | Integer ranging from 0 to 1000 (Watts). Available only if per outlet power sensing is available. |
| reboot_delay | Integer ranging from 5 to 600 (seconds). Available only if outlet switching is present. |
| sequence_interval | Integer ranging from 0 to 15 (seconds). Available only if outlet switching is present. |

(V1.00) ocps

Defines specific over current protector settings. Available only if over current protectors are present. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/ocps
```

Indexed Resource URI:

```
/jaws/config/ocps/<ocp id>
```

Server Technology JSON API Web Service (JAWS)

Resource Properties

| Property | Description |
|-------------------------|---|
| id | ASCII string of 3 to 4 characters in the form <unit id><cord id><ocp number> . This property is Read Only |
| current_capacity | Integer ranging from 1 to the maximum rated over current protector (Amp) capacity. Current capacity is used to compute threshold limits. The maximum capacity is unit specific and varies between models. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |

(V1.00) phases

Defines specific phase settings. Available only if phases are present. This is a static resource collection.

HTTP Supported Methods: GET, PATCH

Global Resource URI (GET only):

```
/jaws/config/phases
```

Indexed Resource URI:

```
/jaws/config/phases/<phase id>
```

Resource Properties

| Property | Description |
|-------------------------|--|
| id | ASCII string of 3 characters in the form <unit id><cord id><phase number> . This property is Read Only |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| power_factor_thresholds | Array of floating point numbers in the order [<low alarm>, <low warning>] ranging from 0.00 to 0.20 in hundredth increments. Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if AC phase power sensing is present. |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |
| voltage_thresholds | Array of floating point numbers in the order [<low alarm>, <low warning>, <high warning>, <high alarm>] ranging from the minimum rated phase voltage to the maximum rated phase voltage in tenth (Volt) increments. Values must be specified in increasing order and may repeat or be pegged to limits to disable specific warnings and alarms. Available only if phase voltage sensing is available. |

(V1.00) phases global

Defines global phase settings. Available only if phases are present.

Server Technology JSON API Web Service (JAWS)

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/phases-global
```

Resource Properties

| Property | Description |
|-------------------------|--|
| power_factor_hysteresis | Floating point number ranging from 0.00 to 0.20 in hundredth increments. Available only if AC phase power sensing is present. |
| voltage_hysteresis | Floating point number ranging from 0.0 to 20.0 in tenth (Volt) increments. Available only if phase voltage sensing is present. |

(V1.00) ports

Defines specific port settings. Available only if ports are present. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/ports
```

Indexed Resource URI:

```
/jaws/config/ports/<port id>
```

Resource Properties

| Property | Description |
|---------------------------|---|
| id | ASCII string of 4 characters in the form COM<port number> . This property is Read Only |
| baud | Defines the serial port baud rate. If the port is locked then this property is Read Only . Valid baud rates: 1200 2400 4800 9600 19200 38400 57600 115200 |
| locked | String that indicates whether ports settings can be modified. This property is Read Only . ASCII string values: no yes |
| dsr_check | Enables or disables DSR monitoring. If the port is locked then this property is Read Only . ASCII string values: disabled enabled |
| remote_connection_timeout | Integer remote connection timeout ranging from 0 to 60 (minutes). If the port is locked then this property is Read Only . |
| rftag_support | Enables or disables RFTAG support. If the port is locked then this property is Read Only . ASCII string values: disabled enabled |

(V1.00) radius

Defines all Radius network configuration settings.

HTTP Supported Methods: **GET, PATCH**

Server Technology JSON API Web Service (JAWS)

Global Resource URI:

```
/jaws/config/radius
```

Resource Properties

| Property | Description |
|---------------------------------------|---|
| primary_server | String defining a host name of 0 to 63 characters. Spaces are not allowed . |
| primary_server_port | Integer ranging from 1 to 65535. |
| primary_server_retries | Integer ranging from 0 to 10. |
| primary_server_shared_secret | ASCII plain text primary server shared secret string from 0 to 48 characters. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| primary_server_shared_secret_secure | ASCII primary server shared secret string that is either blank (empty) or a 96 character AES256 encrypted hex string that can be read and re-written to other units. |
| primary_server_timeout | Integer ranging from 1 to 30 (seconds). |
| secondary_server | String defining a host name of 0 to 63 characters. Spaces are not allowed . |
| secondary_server_port | Integer ranging from 1 to 65535. |
| secondary_server_retries | Integer ranging from 0 to 10. |
| secondary_server_shared_secret | ASCII plain text secondary server shared secret string from 0 to 48 characters. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| secondary_server_shared_secret_secure | ASCII secondary server shared secret string that is either blank (empty) or a 96 character AES256 encrypted hex string that can be read and re-written to other units. |
| secondary_server_timeout | Integer ranging from 1 to 30 (seconds). |

(V1.00) sensors/adc

Defines specific ADC sensor settings. Available only if ADC sensors are present. This is a static resource collection.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI (GET only):

```
/jaws/config/sensors/adc
```

Indexed Resource URI:

```
/jaws/config/sensors/adc/<sensor id>
```

Resource Properties

| Property | Description |
|----------|-------------|
|----------|-------------|

Server Technology JSON API Web Service (JAWS)

| | |
|-------------------------|---|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . This property is Read Only |
| name | String of 0 to 32 characters. Spaces are not allowed . Value cannot be ALL , a duplicate resource name or a reserved resource ID. Value may be blank. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |
| thresholds | Array of 4 integers in the order [<low alarm> , <low warning> , <high warning> , <high alarm>] ranging from 0 to 255. Values must be specified in increasing order, may repeat or be pegged to limits in order to disable specific warnings and alarms. |

(V1.00) sensors/adc-global

Defines global ADC sensor settings. Available only if ADC sensors are present.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/sensors/adc-global
```

Resource Properties

| Property | Description |
|------------|--|
| hysteresis | Integer ranging from 0 to 20 (counts). |

(V1.00) sensors/contact

Defines specific contact sensor settings. Available only if contact sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/sensors/contact
```

Indexed Resource URI:

```
/jaws/config/sensors/contact/<sensor id>
```

Resource Properties

| Property | Description |
|----------|--|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . This property is Read Only |
| name | String of 0 to 32 characters. Spaces are not allowed . Value cannot be ALL , a duplicate resource name or a reserved resource ID. Value may be |

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| | |
|-------------------------|---|
| | blank. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |

(V1.00) sensors/fan

Defines specific fan sensor settings. Available only if fan sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/sensors/fan
```

Indexed Resource URI:

```
/jaws/config/sensors/fan/<sensor id>
```

Resource Properties

| Property | Description |
|-------------------------|---|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . This property is Read Only |
| name | String of 0 to 32 characters. Spaces are not allowed . Value cannot be ALL , a duplicate resource name or a reserved resource ID. Value may be blank. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |
| thresholds | Array of 4 integers in the order [<low alarm> , <low warning> , <high warning> , <high alarm>] ranging from 0 to 15300 in fan rotations per minute (RPM). Values must be specified in increasing order, may repeat or be pegged to limits in order to disable specific warnings and alarms. |

(V1.00) sensors/fan-global

Defines global fan sensor settings. Available only if fan sensors are present.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/sensors/fan-global
```

Resource Properties

| Property | Description |
|----------|-------------|
|----------|-------------|

Server Technology JSON API Web Service (JAWS)

| | |
|------------|--|
| hysteresis | Integer ranging from 0 to 1200 fan rotations per minute (RPM). |
|------------|--|

(V1.00) sensors/humidity

Defines specific humidity sensor settings. Available only if humidity sensors are present. This is a static resource collection.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI (GET only):

```
/jaws/config/sensors/humidity
```

Indexed Resource URI:

```
/jaws/config/sensors/humidity/<sensor id>
```

Resource Properties

| Property | Description |
|-------------------------|--|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . This property is Read Only |
| name | ASCII string from 0 to 32 characters. Spaces are not allowed . Value cannot be ALL , a duplicate resource name or a reserved resource ID. Value may be blank. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |
| thresholds | Array of 4 integers in the order [<low alarm>,<low warning>,<high warning>,<high alarm>] ranging from 0 to 100 in percent relative humidity (% RH). Values must be specified in increasing order, may repeat or be pegged to limits in order to disable specific warnings and alarms. |

(V1.00) sensors/humidity-global

Defines global humidity sensor settings. Available only if humidity sensors are present.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI:

```
/jaws/config/sensors/humidity-global
```

Resource Properties

| Property | Description |
|------------|---|
| hysteresis | Integer ranging from 0 to 20 in percent relative humidity (% RH). |

(V1.00) sensors/temp

Server Technology JSON API Web Service (JAWS)

Defines temperature sensor settings. This section is available only if temperature sensors are present. This is a static resource collection.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI (GET only):

```
/jaws/config/sensors/temp
```

Indexed Resource URI:

```
/jaws/config/sensors/temp/<sensor id>
```

Resource Properties

| Property | Description |
|-------------------------|---|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . This property is Read Only |
| name | String of 0 to 32 characters. Spaces are not allowed . Value cannot be <i>ALL</i> , a duplicate resource name or a reserved resource ID. Value may be blank. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |
| thresholds_celsius | Array of 4 integers in the order [<low alarm> , <low warning> , <high warning> , <high alarm>] ranging from the minimum rated temperature to the maximum rated temperature (degrees C) depending on the temperature scale that was specified. Values must be specified in increasing order, may repeat or be pegged to limits in order to disable specific warnings and alarms. |
| thresholds_fahrenheit | Array of 4 integers in the order [<low alarm> , <low warning> , <high warning> , <high alarm>] ranging from the minimum rated temperature to the maximum rated temperature (degrees F) depending on the temperature scale that was specified. Values must be specified in increasing order, may repeat or be pegged to limits in order to disable specific warnings and alarms. |

(V1.00) sensors/temp-global

Defines global temperature sensor settings. Available only if temperature sensors are present.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI:

```
/jaws/config/sensors/temp-global
```

Resource Properties

| Property | Description |
|--------------------|---|
| hysteresis_celsius | Integer ranging from 0 to 30 (degrees) when the scale is specified as |

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| | |
|-----------------------|--|
| | celsius. |
| hysteresis_fahrenheit | Integer ranging from 0 to 54 (degrees) when the scale is specified as fahrenheit. |
| scale | Defines the displayed temperature scale. ASCII string values: celsius fahrenheit |

(V1.00) sensors/water

Defines specific water sensor settings. This section is readable only if water sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/sensors/water
```

Indexed Resource URI:

```
/jaws/config/sensors/water/<sensor id>
```

Resource Properties

| Property | Description |
|-------------------------|---|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . This property is Read Only |
| name | String of 0 to 32 characters. Spaces are not allowed . Value cannot be ALL , a duplicate resource name or a reserved resource ID. Value may be blank. |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |

(V1.00) snmp

Defines Simple Network Management Protocol (SNMP) settings.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/snmp
```

Resource Properties

| Property | Description |
|-----------------|--|
| get_community | String of 0 to 32 characters. |
| ip_restrictions | Defines the SNMP IP address restrictions. ASCII string values: none trap destinations only |
| set_community | String of 0 to 32 characters. |
| system_contact | String of 0 to 63 characters. |

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| | |
|---------------------------------|---|
| system_name | String of 0 to 63 characters. |
| trap_community | String of 0 to 32 characters. |
| trap_destination_primary_host | String defining a valid host name of 0 to 63 characters. Spaces are not allowed . |
| trap_destination_secondary_host | String defining a valid host name of 0 to 63 characters. Spaces are not allowed . |
| trap_error_repeat_time | Integer ranging from 1 to 65535 (seconds). |
| trap_format | String defining the SNMP trap format to send. String values: v1 v2c v3 |
| v2 | Enables or disables SNMPv2 agent. A change to this property requires a restart. ASCII string values: disabled enabled |
| v3 | Enables or disables SNMPv3 agent. A change to this property requires a restart. ASCII string values: disabled enabled |
| v3_trap_username | String of 0 to 31 characters. |

(V1.00) sntp

Defines Simple Network Time Protocol (SNTP) settings, including Daylight Saving Time (DST) and Time Zone (TZ) strings.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/sntp
```

Resource Properties

| Property | Description |
|----------------------------|---|
| dst | Enables or disables Daylight Saving Time. ASCII string values: disabled enabled |
| dst_end_time_zone_string | A time zone string of 11 to 15 characters in the format: "m.w.d/h:m:s" where the first <i>m</i> is the end month (1-12), <i>w</i> is the end week (1-4) or last week (5), <i>d</i> is the end weekday from Sunday to Saturday (0-6), <i>h</i> is the end hour (0-23), the last <i>m</i> is the end minute (0-59) and <i>s</i> is the end second (0-59). |
| dst_start_time_zone_string | A time zone string of 11 to 15 characters in the format: "m.w.d/h:m:s" where the first <i>m</i> is the end month (1-12), <i>w</i> is the end week (1-4) or last week (5), <i>d</i> is the end weekday from Sunday to Saturday (0-6), <i>h</i> is the end hour (0-23), the last <i>m</i> is the end minute (0-59) and <i>s</i> is the end second (0-59). |
| local_gmt_offset | A gmt offset string ranging from -12:59 to +14:59. The '+' sign is optional. If the exact hour is being specified, then ':MM' minutes are also optional. |
| primary_host | String defining a valid host name of 0 to 63 characters. Spaces are not allowed . |
| secondary_host | String defining a valid host name of 0 to 63 characters. Spaces are not allowed . |

(V1.00) syslog

Server Technology JSON API Web Service (JAWS)

Defines syslog protocol settings.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI:

```
/jaws/config/syslog
```

Resource Properties

| Property | Description |
|-----------------|---|
| debug_messaging | Enables or disables sending debug messages to the syslog server. ASCII string values: disabled enabled |
| hostname_source | String that defined the syslog hostname source string. ASCII string values: fqdn system name . If rfc3164 protocol is specified with FQDN as the source, the hostname will be clipped to the first "." separator if one is present. |
| port | Integer defining the host port ranging from 1 to 65535. |
| primary_host | String defining a valid host name of 0 to 63 characters. Spaces are not allowed . |
| protocol | String that defined the syslog protocol format. ASCII string values: rfc3164 rfc5424 |
| secondary_host | String defining a valid host name of 0 to 63 characters. Spaces are not allowed . |

(V1.00) system

Defines system settings.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI:

```
/jaws/config/system
```

Resource Properties

| Property | Description |
|----------|---|
| location | String of 0 to 80 characters defining the location of the system. |

(V1.00) tacacs

Defines all TACACS+ network configuration settings.

HTTP Supported Methods: *GET, PATCH*

Global Resource URI:

```
/jaws/config/tacacs
```

Resource Properties

| Property | Description |
|----------|---|
| key | ASCII plain text TACACS+ key from 0 to 60 characters. Value may require |

Server Technology JSON API Web Service (JAWS)

| | |
|----------------|---|
| | encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| key_secure | ASCII AES256 encrypted TACACS+ key that is either blank (empty) or a 128 character hex string that can be read and re-written to other units. |
| port | Integer defining the host port ranging from 1 to 65535. |
| primary_host | String defining a valid host name of 0 to 63 characters. |
| secondary_host | String defining a valid host name of 0 to 63 characters. |

(V1.00) units

Defines specific unit settings. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/units
```

Indexed Resource URI:

```
/jaws/config/units/<unit id>
```

Resource Properties

| Property | Description |
|-------------------------|--|
| id | ASCII string of 1 character in the form <unit id> . This property is Read Only |
| name | String of 0 to 32 characters. Spaces are not allowed . Value cannot be ALL , a duplicate resource name or a reserved resource ID. Value may be blank. |
| asset_tag | String of 0 to 32 characters. Any attempt to change this setting on a legacy unit that does not support asset tags will be ignored. |
| display_orientation | Defines the display orientation for unit. Any attempt to change this setting on device that does not have display support or does not support a display option will be ignored. ASCII string values: auto inverted normal |
| email_notifications | Enables or disables email notifications. ASCII string values: disabled enabled |
| identify | Enables or disables flashing of the unit's display for device identification purposes. Setting this to enabled resets a timer that automatically disables flashing after an hour. ASCII string values: disabled enabled |
| outlet_display_order | Defines the outlet display order in the WEB and CLI. Any attempt to change this setting on device that does not have sequential switched outlets will be ignored. ASCII string values: normal reversed |
| outlet_sequence | Defines the outlet sequence order. Any attempt to change this setting on device that does not have switched outlets will be ignored. ASCII string values: normal reversed |
| snmp_trap_notifications | Enables or disables SNMP trap notifications. ASCII string values: disabled enabled |

(V1.00) users/ldap

Defines specific Lightweight Directory Access Protocol (LDAP) user settings. The will return an empty list if no LDAP groups have been defined. This is a dynamic resource collection. Refer to the PDU documentation for the maximum number of LDAP groups supported.

Server Technology JSON API Web Service (JAWS)

HTTP Supported Methods: *GET, PATCH, POST, DELETE*

Global Resource URI (GET only):

```
/jaws/config/users/ldap
```

Dynamic Resource URI:

```
/jaws/config/users/ldap/<group name>
```

Resource Properties

| Property | Description |
|-----------------------|---|
| group_name | String of 1 to 32 characters. Spaces are not allowed . This property is Read Only |
| access_level | LDAP group access level. ASCII string values: admin on only power user reboot only user view only |
| group_access | Array of strings which are the names of the outlet groups defined for this user. |
| outlet_access | Array of strings which are the outlet IDs defined for this user. |
| remote_port_access | Array of integers which are the remote ports defined for this user. |
| system_monitor_access | Enables or disables system monitor access. ASCII string values: disabled enabled |

(V1.00) users/local

Defines specific local user settings. The global resource URI will return an empty list if no local users have been defined. This is a dynamic resource collection. Refer to the PDU documentation for the maximum number of local users supported.

HTTP Supported Methods: *GET, PATCH *, POST, DELETE*

*Available when security restrictions are in effect **

Global Resource URI (GET only):

```
/jaws/config/users/local
```

Dynamic Resource URI:

```
/jaws/config/users/local/<username>
```

Resource Properties

| Property | Description |
|--------------|---|
| username | String of 1 to 32 characters. Spaces are not allowed . This property is Read Only |
| access_level | User access level. ASCII string values: admin on only power user reboot only user view only |
| group_access | Array of strings which are the names of the outlet groups defined for this |

Server Technology JSON API Web Service (JAWS)

| | |
|-----------------------|--|
| | user. |
| outlet_access | Array of strings which are the outlet IDs defined for this user. |
| password | ASCII plain text user password string from 1 to 32 characters. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. A user password is required when using the POST create method. |
| password_secure | ASCII SHA256 hashed user password that is either blank (empty) or a 64 character hex string that can be read and re-written to other units. A user password is required when using the POST create method. |
| remote_port_access | Array of integers which are the remote ports defined for this user. |
| system_monitor_access | Enables or disables system monitor access. String values: disabled enabled |

(V1.00) users/snmpv3

Defines specific snmpv3 user settings. The global resource URI will return an empty list if no snmpv3 users have been defined. This is a dynamic resource collection. Refer to the PDU documentation for the maximum number of SNMPv3 users supported.

HTTP Supported Methods: **GET, PATCH, POST, DELETE**

Global Resource URI (GET only):

```
/jaws/config/users/snmpv3
```

Dynamic Resource URI:

```
/jaws/config/users/snmpv3/<username>
```

Resource Properties

| Property | Description |
|-------------------------|--|
| username | String of 1 to 31 characters. This property is Read Only . |
| access | String defining the SNMPv3 access permissions. ASCII string values: disabled read-only read-write write-only |
| auth_method | String defining the SNMPv3 user authentication method. Any option with MD5 or SHA requires an associated user authentication password. Any option with DES or AES requires an associated user privacy password. ASCII string values: md5 md5 with des md5 with aes none sha sha with des sha with aes |
| auth_password | ASCII plain text SNMPv3 user authentication password string from 0 to 39 characters if an authentication method (MD5) is selected. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| auth_password_secure | ASCII SNMPv3 user authentication password that is either blank (empty) or a 96 character AES256 encrypted hex string that can be read and re-written to other units. A authentication password (secure or plain text) is required if an authentication method (MD5) is selected. |
| privacy_password | ASCII plain text SNMPv3 user authentication password string from 0 to 31 characters if a privacy method (DES) is selected. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| privacy_password_secure | ASCII SNMPv3 user privacy password that is either blank (empty) or a 96 |

Server Technology JSON API Web Service (JAWS)

character AES256 encrypted hex string that can be read and re-written to other units. A privacy password (secure or plain text) is required if a privacy method (DES) is selected.

(V1.00) users/tacacs

Defines specific Terminal Access Controller Access Control System (TACACS+) user settings. This is a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/config/users/tacacs
```

Indexed Resource URI:

```
/jaws/config/users/tacacs/<privilege level>
```

Resource Properties

| Property | Description |
|-----------------------|--|
| privilege_level | Integer ranging from 0 to 15 defining the TACACS+ privilege level. This property is Read Only |
| access_level | Local user access level. ASCII string values: admin on only power user reboot only user view only |
| group_access | Array of strings which are the names of the outlet groups defined for this user. |
| outlet_access | Array of strings which are the outlet IDs defined for this user. |
| remote_port_access | Array of integers which are the remote ports defined for this user. |
| system_monitor_access | Enables or disables system monitor access. ASCII string values: disabled enabled |

(V1.00) web

Defines the web settings, including HTTP and Secure Socket Layer (SSL) web servers.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/config/web
```

Resource Properties

| Property | Description |
|----------------|--|
| ca_certificate | Enables or disables the user uploaded CA certificate. A change to this property requires a restart. ASCII string values: disabled enabled |
| http | Enables or disables the web server. A change to this property requires a restart. ASCII string values: disabled enabled |

Server Technology JSON API Web Service (JAWS)

| | |
|--------------------------------------|---|
| http_port | Integer ranging from 1 to 65535. A change to this property requires a restart if HTTP is enabled. |
| https | Enables or disables the SSL web server. A change to this property requires a restart. ASCII string values: disabled enabled |
| https_port | Integer ranging from 1 to 65535. A change to this property requires a restart if HTTPS is enabled. |
| json_api_web_service | Enables or disables the JSON API Web Service. ASCII string values: disabled enabled |
| log_entries_per_page | Integer defining the number of log messages displayed in a web page, ranging from 10 to 250 (entries). |
| server_certificate | Enables or disables the user uploaded server identity certificate and key. A change to this property requires a restart. ASCII string values: disabled enabled |
| server_certificate_passphrase | ASCII plain text user uploaded server certificate identity key passphrase string from 0 to 64 characters. Value may require encapsulated quotes. This property is WRITE ONLY and is not visible using the GET method. |
| server_certificate_passphrase_secure | ASCII user uploaded server certificate identity key passphrase that is either blank (empty) or a 128 character AES256 encrypted hex string that can be read and re-written to other units. |
| session_timeout | Integer defining the idle WEB session time out, ranging from 1 to 1440 (minutes). |

(V1.00) ztp

Defines the Zero Touch Provisioning (ZTP) options.

Global Resource URI:

```
/jaws/config/ztp
```

HTTP Supported Methods: **GET, PATCH**

Resource Properties

| Property | Description |
|-----------------------|---|
| automatic_updates | Enables or disable automatic scheduled ZTP updates. ASCII string values: disabled enabled |
| state_reset | A WRITE ONLY string that resets the Zero Touch Provisioning state so that a new DHCP option 43 request can be reissued on the next DHCP lease. ASCII string values: no yes |
| update_scheduled_day | ZTP automatic scheduled update day. ASCII string values: Sunday Monday Tuesday wednesday Thursday Friday Saturday Everyday |
| update_scheduled_hour | ZTP automatic scheduled update hour. ASCII string values: 12 am 1 am 2 am 3 am 4 am 5 am 6 am 7 am 8 am 9 am 10 am 11 am 12 pm 1 pm 2 pm 3 pm 4 pm 5 pm 6 pm 7 pm 8 pm 9 pm 10 pm 11 pm |

Configuration Information API

Available only to authenticated system administrators.

(V1.00) network

Shows current network status.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/config/info/network
```

Resource Properties

| Property | Description |
|--------------------------|---|
| duplex | Current network duplex. ASCII string values: Fu11 Half Unknown |
| ethernet_mac_address | Current colon delimited MAC address of the ethernet interface. |
| ipv4_address | An IPv4 string of 7 to 15 characters showing the current IP address. Not available in IPv6 only mode |
| ipv4_subnet_mask | An IPv4 string of 7 to 15 characters showing the current subnet mask. Not available in IPv6 only mode |
| ipv4_gateway | An IPv4 string of 7 to 15 characters showing the current gateway. Not available in IPv6 only mode |
| ipv6_auto_config_address | An IPv6 (RFC4291) string showing the current auto configured IPv6 address. Not available in IPv4 only mode |
| ipv6_address | An IPv6 (RFC4291) string defining the current IPv6 address if available. Not available in IPv4 only mode |
| ipv6_gateway | An IPv6 (RFC4291) string defining the current IPv6 gateway if available. Not available in IPv4 only mode |
| link | Current network link status. ASCII string values: Up Down |
| negotiation | Current network negotiation status. ASCII string values: Auto Auto (Searching) Manual |
| primary_dns | An IPv4 or IPv6 (RFC4291) string showing the current primary IPv4/IPv6 DNS address. Not available if network mode excludes specified IP version (refer to DNS settings in /config/network). |
| secondary_dns | An IPv4 or IPv6 (RFC4291) string showing the current secondary IPv4/IPv6 DNS address. Not available if network mode excludes specified IP version (refer to DNS settings in /config/network). |
| speed | Current network interface speed. ASCII string values: 10 Mbps 100 Mbps 1000 Mbps Unknown |
| state | Current network interface state. ASCII string values: Acquiring Disabled Disconnected DHCP IPv4 DHCP IPv6 DHCP IPv4/IPv6 Re-acquiring Static Conflict Static IP Failed Static IPv4 Static IPv6 Static IPv4/IPv6 |
| stateless_dhcpv6_address | An IPv6 (RFC4291) string showing the current stateless DHCPv6 address if available. Not available in IPv4 only mode |

Server Technology JSON API Web Service (JAWS)

V1.04) sntp

Shows current SNTP status.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/config/info/sntp
```

Resource Properties

| Property | Description |
|-----------|--|
| localtime | ASCII string showing the current local date and time, each in ISO-8601 format. DST may also be appended if enabled. The string also indicates if the SNTP server is not available. |
| status | ASCII status string indicating whether the local time reading is synchronized or not with the SNTP server. ASCII string values: synchronized not synchronized |

(V1.00) system

Shows current system status.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/config/info/system
```

Resource Properties

| Property | Description |
|-----------------------------------|---|
| active_users | Integer number of active users in the system, including JAWS users. |
| boot_info | ASCII string showing the current bootloader version |
| build_info | ASCII string showing the current firmware build information |
| firmware | ASCII string showing the current product / firmware version. * |
| hardware | ASCII string showing current hardware details |
| nic_serial_number | ASCII string showing the current NIC serial number * |
| product_series | ASCII string showing the current product series * |
| uptime | ASCII string showing the current uptime in days, hours, minutes and seconds |

* Available when security restrictions are in effect

Server Technology JSON API Web Service (JAWS)

(V1.00) units

Shows current unit status.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/config/info/units
```

Resource Properties

| Property | Description |
|-----------------------|--|
| id | ASCII string of 1 character in the form <unit id> . |
| name | ASCII string name of the unit. |
| manufacture_date | ISO 8601 date string in the format YYYY-MM-DD showing the current manufacture date. This may also be blank. |
| model_number | ASCII string showing the model number of the unit. |
| product_serial_number | ASCII string showing the product serial number of the unit. |
| type | ASCII string showing the type of unit. ASCII string values (partial list): Controller EMCU Link Link (Golden) Primary Primary (Golden) Unknown |

Server Technology JSON API Web Service (JAWS)

Control API

Available to authenticated users with specific outlet/groups access rights

(V1.00) groups

Handles outlet group control operations. Available only if controllable outlet groups are present based on current JAWS user access rights. This is derived from a dynamic resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only):

```
/jaws/control/groups
```

Dynamic Resource URI:

```
/jaws/control/groups/<outlet group name>
```

Resource Properties

| Property | Description |
|----------------|---|
| name | Unique ASCII string of 1 to 32 characters (no spaces) defining an outlet group to operate on. This property is Read Only |
| outlet_access | Array of 3-5 character outlet ID strings associated with this group in the form of " <unit id><cord id><outlet index> ". This property is Read Only |
| control_action | Current or desired outlet control state for this group. ASCII string values: off on reboot . This property is Write Only |

(V1.00) outlets

Handles specific outlet control operations. Available only if controllable outlets are present based on current JAWS user access rights. This is derived from a static resource collection.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI (GET only): **(GET only)**

```
/jaws/control/outlets
```

Indexed Resource URI:

```
/jaws/control/outlets/<outlet id>
```

Resource Properties

| Property | Description |
|----------|---|
| id | ASCII string of 3 to 4 character outlet id in the form: <unit id><cord id><outlet index> . This property is Read Only |
| name | Unique ASCII string of 0 to 32 characters (no spaces) defining the outlet name. This property is Read Only |

Server Technology JSON API Web Service (JAWS)

| | |
|----------------|--|
| control_action | Current or desired outlet control state for this group. ASCII string values: off on reboot . This property is Write Only |
| control_state | ASCII string showing current outlet control state, This property is Read Only |
| state | ASCII string showing current outlet on/off state, This property is Read Only |

Monitor API

Available to authenticated users with environmental monitor access rights

(V1.00) branches

Read current branch monitoring properties. Available only if branches are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/branches
```

Indexed Resource URI:

```
/jaws/monitor/branches/branch id>
```

Resource Properties

| Property | Description |
|------------------|--|
| id | ASCII string of 3 to 4 characters in the form <unit id><cord id><branch number> . |
| name | ASCII string name of the branch. |
| current | Floating point branch current in hundredth Amps. Available only if branch current sensing is present and value is known. |
| current_capacity | Integer branch current capacity in whole Amps. |
| current_status | ASCII status string. [†] Available only if branch current sensing is present. |
| current_utilized | Floating point branch utilization percentage in tenths. Available only if branch current sensing is present and value is known |
| ocp_id | ASCII string, over-current-protector ID of form <unit id><cord id><ocp number> . |
| phase_id | ASCII string, phase ID of form <unit id><cord id><phase number> . |
| state | Current state of the branch. ASCII string values: -- off on |
| status | ASCII status string. [†] |

(V1.00) cords

Defines cord monitoring properties. Available only if cords are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/cords
```

Indexed Resource URI:

Server Technology JSON API Web Service (JAWS)

```
/jaws/monitor/cords/cord id>
```

Resource Properties

| Property | Description |
|------------------------------|--|
| id | ASCII string of 2 characters in the form <unit id><cord number> . |
| name | ASCII string name of the branch. |
| active_power | Integer cord power in Watts. Available only if cord power sensing is present and value is known (AC or DC). |
| active_power_status | ASCII status string. [†] Available only if cord power sensing is present (AC or DC). |
| apparent_power | Integer cord apparent power ranging from 0 to maximum rated power in Volt-Amps. Available only if AC cord power sensing is present and value is known. |
| apparent_power_status | ASCII status string. [†] Available only if AC cord power sensing is present. |
| energy | Floating point cord energy in tenth kilowatt-hours (kWh). Available only if energy sensing is present and value is known. |
| frequency | Floating point cord frequency in tenth Hertz (Hz). Available only if frequency sensing is present and value is known. |
| power_capacity | Integer cord power capacity in Watts. |
| power_factor | Floating point cord power factor in hundredths. Available only if AC cord power factor sensing is present and value is known. |
| power_factor_status | ASCII status string. [†] Available only if cord power factor sensing is present. |
| power_utilized | Floating point cord power utilization percentage in tenths.. Available only if cord power sensing is present and value is known. For AC products, this is the ratio of the apparent power to the power capacity. For DC products, this is the ratio of the active power to the power capacity. |
| plug_type | ASCII cord plug type string, maximum length of 32, defines the type of cord plug or socket. |
| state | ASCII cord state string: -- off on |
| status | ASCII cord status ASCII string. [†] |
| three_phase_imbalance | Floating point 3 phase out of balance percentage in tenths.. Available only if 3-phase AC cord current sensing is present and value is known. |
| three_phase_imbalance_status | ASCII status string. [†] Available only if 3-phase AC cord current sensing is present. |

(V1.00) groups

Defines the current authenticated web service user's outlet group access properties. The global resource URI will return an empty list if no groups have been defined. This is a dynamic resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/groups
```

Indexed Resource URI:

Server Technology JSON API Web Service (JAWS)

```
/jaws/monitor/groups/<group name>
```

Resource Properties

| Property | Description |
|---------------|--|
| name | ASCII string name of the outlet group. |
| outlet_access | Array of outlet ID strings belonging to the group. See the outlets resource for the properties and their values for each outlet. |

(V1.00) lines

Defines line monitoring properties. Available only if lines are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/lines
```

Indexed Resource URI:

```
/jaws/monitor/lines/line id>
```

Resource Properties

| Property | Description |
|------------------|--|
| id | ASCII string of 3 characters in the form <unit id><cord id><line number> . |
| name | ASCII string name of the line. |
| current | Floating point line current in hundredth Amps. Available only if current sensing is available and value is known. |
| current_capacity | Integer line current capacity in Amps. |
| current_status | ASCII status string. [†] Available only if current sensing is available. |
| current_utilized | Floating point line current utilization percentage in tenths. Available only if current sensing is available and value is known. |
| state | ASCII line state string: -- off on |
| status | ASCII line status string. [†] |

(V1.00) ocps

Defines over current protector monitoring properties. Available only if over current protectors are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/ocps
```

Server Technology JSON API Web Service (JAWS)

Indexed Resource URI:

```
/jaws/monitor/ocps/ocp id>
```

Resource Properties

| Property | Description |
|------------------|---|
| id | ASCII string of 3 to 4 characters in the form <unit id><cord id><ocp number> . |
| name | ASCII string name of the over current protector. |
| current_capacity | Integer over current protector current capacity in Amps. |
| status | ASCII over current protector status string. [†] |
| type | ASCII over current protector type ASCII string: fuse breaker unknown |

(V1.00) outlets

Defines outlet monitoring properties. Available only if outlets are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/outlets
```

Indexed Resource URI:

```
/jaws/monitor/outlets/outlet id>
```

Resource Properties

| Property | Description |
|---------------------|--|
| id | ASCII string of 3 to 5 characters in the form <unit id><cord id><outlet number> . |
| name | ASCII string name of the outlet. |
| active_power | Integer outlet power in Watts. Available only if outlet power sensing is present and value is known (AC or DC). |
| active_power_status | ASCII status string. [†] Available only if outlet power sensing is present. |
| apparent_power | Integer outlet apparent power in Volt-Amps. Available only if outlet apparent power sensing is present and value is known. |
| branch_id | ASCII string, upstream branch ID in the form <unit id><cord id><branch number> . |
| control_state | Available only if outlet control is present. ASCII string values: -- fixed on idle off idle on wake off wake on ocp off ocp on pend on pend off off on reboot shutdown locked off locked on evt off evt on evt reboot evt shtdwn |
| current | Floating point outlet current in hundredth Amps. Available only if outlet current sensing is present and value is known. |
| crest_factor | Floating point outlet crest factor in tenths. Available only if outlet crest |

Server Technology JSON API Web Service (JAWS)

| | |
|---------------------|---|
| | factor sensing is present and value is known. |
| current_capacity | Integer outlet current capacity in Amps. |
| current_status | ASCII status string. [†] |
| current_utilized | Floating point outlet current utilization percentage in tenths. Available only if outlet current sensing is present and value is known. |
| energy | Integer outlet energy in Watt-Hours. Available only if energy sensing is present and value is known. |
| ocp_id | ASCII string, upstream over-current-protector ID in the form <unit id><cord id><ocp number> . |
| phase_id | ASCII string, upstream phase ID in the form <unit id><cord id><phase number> . |
| power_capacity | ASCII integer power capacity in VA for AC products and Watts for DC products. |
| power_factor | Floating point outlet power factor in hundredths. Available only if outlet power factor sensing is present and value is known. |
| power_factor_status | ASCII status string. [†] Available only if outlet power factor sensing is present. |
| reactance | ASCII status of the measured outlet reactance. Available only if outlet power factor sensing present and value is known. String values: Capacitive Inductive Resistive |
| socket_adapter | ASCII socket adapter type: -- c13 c19 None |
| socket_type | ASCII socket type: -- c13 c19 Cx UDOT |
| state | ASCII state string: -- off on |
| status | ASCII status string. [†] |
| voltage | Floating point outlet voltage in tenth Volts. Available only if voltage sensing is present and value is known. |

(V1.00) phases

Defines phase monitoring properties. Available only if phases are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/phases
```

Indexed Resource URI:

```
/jaws/monitor/phases/phase id>
```

Resource Properties

| Property | Description |
|----------------|--|
| id | ASCII string of 3 characters in the form: <unit id><cord id><phase number> . |
| name | ASCII string name of the phase. |
| active_power | Integer phase power in Watts. Available only if phase power sensing present and value is known. (AC or DC) |
| apparent_power | Integer phase apparent power in Volt-Amps. Available only if phase VA |

Server Technology JSON API Web Service (JAWS)

| | |
|---------------------|--|
| | sensing present and value is known. (AC only) |
| current | Floating point phase current in hundredth Amps. Available only if phase current load sensing is present and value is known. |
| crest_factor | Floating point phase crest factor in tenths. Available only if phase crest factor sensing present. |
| energy | Integer phase energy in tenth kilowatt-hours (kWh). Available only if phase energy sensing present and value is known. |
| nominal_voltage | Integer phase nominal voltage in Volts. Available only if phase voltage sensing present. |
| power_factor | Floating point phase power factor in hundredths. Available only if phase power factor sensing present and value is known. |
| power_factor_status | ASCII status string. [†] Available only if phase power factor sensing present. |
| reactance | ASCII status of the measured phase reactance. Available only if phase power factor sensing present and value is known. String values: Capacitive Inductive Resistive |
| state | ASCII state string: -- Off On |
| status | ASCII status string. [†] |
| voltage | Floating point phase voltage in tenth Volts. Available only if phase voltage sensing present and value is known. |
| voltage_status | ASCII status string. [†] Available only if phase voltage sensing present. |
| voltage_deviation | Floating point phase deviation percentage from nominal voltage in tenths. Available only if phase voltage sensing present. |

(V1.00) sensors/adc

Defines ADC sensor monitoring properties. Available only if ADC sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/sensors/adc
```

Indexed Resource URI:

```
/jaws/monitor/sensors/adc/sensor id>
```

Resource Properties

| Property | Description |
|----------|--|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . |
| name | ASCII string name of the ADC sensor. |
| status | ASCII status string. [†] |
| value | Integer ADC value from 0 to 255. Displayed only if the sensor is present and the value is known. |

(V1.00) sensors/contact

Server Technology JSON API Web Service (JAWS)

Defines contact sensor monitoring properties. Available only if contact sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/sensors/contact
```

Indexed Resource URI:

```
/jaws/monitor/sensors/contact/sensor id>
```

Resource Properties

| Property | Description |
|----------|--|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . |
| name | ASCII string name of the contact sensor. |
| status | ASCII status string. [†] |

(V1.00) sensors/fan

Defines fan sensor monitoring properties. Available only if fan sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/sensors/fan
```

Indexed Resource URI:

```
/jaws/monitor/sensors/fan/sensor id>
```

Resource Properties

| Property | Description |
|----------|--|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . |
| name | ASCII string name of the fan sensor. |
| speed | Integer fan speed in rotations per minute (RPM), Displayed only if the sensor is present and the value is known. |
| status | ASCII status string. [†] |

(V1.00) sensors/humidity

Defines humidity sensor monitoring properties. Available only if humidity sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Server Technology JSON API Web Service (JAWS)

Global Resource URI:

```
/jaws/monitor/sensors/humidity
```

Indexed Resource URI:

```
/jaws/monitor/sensors/humidity/sensor id>
```

Resource Properties

| Property | Description |
|-------------------|--|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . |
| name | ASCII string name of the relative humidity sensor. |
| relative_humidity | Floating point relative humidity percentage in tenths (%RH). Displayed only if the sensor is present and the value is known. |
| status | ASCII status string. [†] |

(V1.00) sensors/temp

Defines temperature sensor monitoring properties. Available only if temperature sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/sensors/temp
```

Indexed Resource URI:

```
/jaws/monitor/sensors/temp/sensor id>
```

Resource Properties

| Property | Description |
|------------------------|---|
| id | ASCII string of 2 characters in the form <unit id><sensor number> . |
| name | ASCII string name of the temperature sensor. |
| status | ASCII status string. [†] |
| temperature_celsius | Floating point temperature in tenth Celsius. Displayed only if the current temperature scale is present, in Celsius and the value is known. |
| temperature_fahrenheit | Floating point temperature in tenth Fahrenheit. Displayed only if the current temperature scale is present, in Fahrenheit and the value is known. |

(V1.00) sensors/water

Defines water sensor monitoring properties. Available only if water sensors are present. This is a static resource collection.

HTTP Supported Methods: **GET**

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Global Resource URI:

```
/jaws/monitor/sensors/water
```

Indexed Resource URI:

```
/jaws/monitor/sensors/water/sensor id>
```

Resource Properties

| Property | Description |
|----------|--|
| id | ASCII string of 2 characters in the form <i><unit id><sensor number></i> . |
| name | ASCII string name of the water sensor. |
| status | ASCII status string. [†] |

(V1.00) system

Defines system monitoring properties. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/system
```

Resource Properties

| Property | Description |
|-------------------------|--|
| active_users | Integer number of active users logged in. |
| firmware | ASCII firmware information string. |
| nic_serial_number | ASCII NIC serial number string. |
| status_branches | ASCII global status string. [†] |
| status_cords | ASCII global status string. [†] |
| status_lines | ASCII global status string. [†] |
| status_ocps | ASCII global status string. [†] |
| status_outlets | ASCII global status string. [†] |
| status_phases | ASCII global status string. [†] |
| status_sensors_adc | ASCII global status string. [†] |
| status_sensors_contact | ASCII global status string. [†] |
| status_sensors_fan | ASCII global status string. [†] |
| status_sensors_humidity | ASCII global status string. [†] |
| status_sensors_temp | ASCII global status string. [†] |
| status_sensors_water | ASCII global status string. [†] |
| status_units | ASCII global status string. [†] |
| uptime | ASCII uptime in days, hours, minutes and seconds |

Server Technology JSON API Web Service (JAWS)

(V1.00) units

Defines unit monitoring properties. This is a static resource collection.

HTTP Supported Methods: **GET**

Global Resource URI:

```
/jaws/monitor/units
```

Indexed Resource URI:

```
/jaws/monitor/units/unit id>
```

Resource Properties

| Property | Description |
|---------------------|--|
| id | ASCII string of 1 character in the form <unit id> . |
| name | ASCII string name of the unit. |
| display_orientation | ASCII string values: Auto (Inverted) Auto (Normal) Inverted Normal |
| outlet_sequence | ASCII String values: Normal Reversed |
| status | ASCII status string. [†] |
| type | ASCII String values: Controller EMCU Link Link (Golden) Primary Primary (Golden) Unknown |

Restart API

Available only to authenticated system administrators.

(V1.00) restart

Handles all device restart operations and status.

HTTP Supported Methods: **GET, PATCH**

Global Resource URI:

```
/jaws/restart
```

Resource Properties

| Property | Description |
|----------|---|
| action | Restart action to initiate. Any one of the following ASCII string values: factory Restart to default factory settings factory keep network Factory restart, keep current network settings new firmware Restart and upload new firmware via FTP new ssh keys Restart, generate new SSH keys new x509 certificate Restart, generate new x509 self-signed cert normal Normal restart This property is Write Only |
| required | Current required restart status for the system. ASCII string values: yes no no (restarting) . This property is Read Only |

† ASCII status string values:

normal
disabled
purged
reading
wait
not found
lost
read error
no comm
power error
breaker tripped
fuse blown
low alarm
low warning
high warning
high alarm
alarm
under limit
over limit
nvm fail
profile error
conflict

Appendix A: Example Use Cases

Configuration API Use Cases

The following use cases exemplify the four core HTTP methods that represent the basic CRUD operations - *GET* (Read), *PATCH* (Update), *POST* (Create) and *DELETE* (Delete).

The HTTP headers are incomplete and serve only as examples of some of the expected fields.

1. Reading access resource

The user wants to request the *access* configuration resource from the system. The *access* resource is a singleton; its URI is:

```
/jaws/config/access
```

The user sends an HTTP GET request with the proper credentials in the header:

In this example, "Authorization: Basic am9sc29uOnBhc3N3b3Jk" assumes a successful connection was performed accessing the API with valid credentials and the output token was cached for reuse.

cURL Example:

Refer to cURL documentation for options and sending authorization token headers. For general cURL scripting, a username and password can be supplied on the command line with `-u`. Modify the example username, password, and IP address to your own particular setup. Some options listed below may or may not apply

GET / Read data to console:

```
$curl -k -sS --noproxy /* -u username:password GET https://192.168.1.2/jaws/config/access -H "Content-Type: application/json" --output mydata.json
```

GET / Read data to json file (mydata.json):

```
$curl -k -sS --noproxy /* -u username:password GET https://192.168.1.2/jaws/config/access -H "Content-Type: application/json" --output mydata.json
```

Client Request

```
GET /jaws/config/access HTTP/1.1
Host: 10.1.2.204
Authorization: Basic am9sc29uOnBhc3N3b3Jk
```

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Once the server has verified credentials and determined the request is valid, it will respond with appropriate response and JSON API message data:

Server Response

```
HTTP/1.1 200 OK
Allow: GET, PATCH
Content-Type: application/json
Pragma: JAWS v1.06
Server: ServerTech-AWS/v8.0w
...
{
  "access_method": "local only",
  "configuration_reset_button": "disabled",
  "default_log_order": "newest first",
  "local_administrator_account": "required",
  "startup_stick": "enabled",
  "strong_passwords": "enabled"
}
```

2. Update outlet in resource collection

The user has decided to disable both email and SNMP trap notifications, as well as update the *extra_on_delay* to 4 seconds for the first outlet on the primary unit (id = "AA1"). To update, the URI is:

```
/jaws/config/outlets/AA1
```

The user sends an HTTP PATCH request with the proper credentials in the header, as well as a valid JSON object:

cURL Example:

PATCH / modify with inline data:

```
$curl -k -sS --no-proxy /* -u username:password PATCH https://192.168.1.2/jaws/config/access -H
"Content-Type: application/json" -d
{"snmp_trap_notifications":"disabled","extra_on_delay":"4"} -V
```

PATCH / modify with json file (outletAA1.json):

```
$curl -k -sS --no-proxy /* -u username:password PATCH https://192.168.1.2/jaws/config/access -H
"Content-Type: application/json" -d @outletAA1.json
```

Client Request

```
PATCH /jaws/config/outlets/AA1 HTTP/1.1
```



```
Host: 10.1.2.204
Authorization: Basic am9sc29uOnBhc3N3b3Jk
Content-Type: application/json

{
  "name": "Primary_Outlet_1",
  "control_lock": "disabled",
  "current_thresholds": [0.0, 0.0, 14.0, 16.0],
  "email_notifications": "disabled",
  "extra_on_delay": 4,
  "host": "",
  "strong_passwords": "enabled",
  "power_factor_thresholds": [0.70, 0.80],
  "power_thresholds": [0.0, 0.0, 2192, 3328],
  "script_delay": 2,
  "script_feature": "disabled",
  "shutdown_delay": 30,
  "shutdown_feature": "disabled",
  "snmp_trap_notifications": "disabled",
  "socket_adapter": "C13",
  "wakeup_state": "last"
}
```

In this case, the server confirms the credentials are valid and validates the data, successfully updating the outlet. The server responds with an empty success message:

Server Client

```
HTTP/1.1 204 NO CONTENT
...
```

3. Create new group in groups resource collection

The user needs to add a new outlet access group for outlets that they know exist in the system - AA5, AA6, AA7 and AA11. The name for this new group is *server-farm*. Assuming that the user has already checked that no other groups exist with this name, the URI for the request is:

```
/jaws/config/groups/server-farm
```

The user sends an HTTP POST request with the proper credentials in the header, as well as a valid JSON object defining the group:

cURL Example:

POST / create with inline data:

```
$curl -k -sS --noproxy /* -u username:password POST
https://192.168.1.2/jaws/config/groups/server-farm -H "Content-Type: application/json" -d
{"outlet_access_list":["AA5","AA6","AA7","AA11"]} -V
```

POST / create from json file (server-farm.json):

Server Technology JSON API Web Service (JAWS)

```
$curl -k -sS --noproxy /* -u username:password POST https://192.168.1.2/jaws/groups/server-farm -H "Content-Type: application/json" -d @server-farm.json
```

Client Request

```
POST /jaws/config/groups/server-farm HTTP/1.1
Host: 10.1.2.204
Authorization: Basic am9sc29uOnBhc3N3b3Jk
Content-Type: application/json

{
  "outlet_access_list": ["AA5", "AA6", "AA7", "AA11", "BA3"],
}
```

The server confirms the credentials are valid and validates the data, successfully creating the group. The server responds with a success message:

Server Response

```
HTTP/1.1 201 CREATED
Allow: GET, PATCH, POST, DELETE
Location: 10.1.2.204/jaws/v1/config/groups/server-farm
...
```

4. Delete a group in groups resource collection

The user decides they need to delete the previously created *server-farm* group. The URI for the request is:

```
/jaws/config/groups/server-farm
```

The user sends an HTTP DELETE request with the proper credentials in the header:

cURL Example:

```
$curl -k -sS --noproxy /* -u username:password DELETE https://192.168.1.2/jaws/config/groups/server-farm
```

Client Request

```
DELETE /jaws/config/groups/server-farm HTTP/1.1
Host: 10.1.2.204
Authorization: Basic am9sc29uOnBhc3N3b3Jk
```

Server Technology JSON API Web Service (JAWS)

The server confirms the credentials are valid and checks that the requested group does exist and deletes it. The server responds with an empty success message:

Server Response

```
HTTP/1.1 204 NO CONTENT
...
```

5. Reading the outlet collection resource

To get a complete list of the outlets back from the unit, use the collection resource URI:

```
/jaws/config/outlets/
```

The user sends an HTTP GET request with the proper credentials in the header:

Client Request

```
GET /jaws/config/outlets HTTP/1.1
Host: 10.1.2.204
Authorization: Basic am9sc29uOnBhc3N3b3Jk
```

The server confirms the credentials are valid. After parsing the URI, it responds with a JSON message containing the configuration of each outlet:

Server Response

```
HTTP/1.1 200 OK
Allow: GET
Content-Type: application/json
Pragma: JAWS v1.00
Server: ServerTech-AWS/v8.0g
...
[
  {
    "id": "AA1",
    "name": "Primary_Outlet_1",
    "control_lock": "disabled",
    "current_thresholds": [0.0, 0.0, 14.0, 16.0],
    "email_notifications": "disabled",
    "extra_on_delay": 4,
    ...
  },
  {
    "id": "AA2",
    "name": "Primary_Outlet_2",
    "control_lock": "disabled",
    "current_thresholds": [0.0, 0.0, 14.0, 16.0],
    "email_notifications": "disabled",
    "extra_on_delay": 4,
    ...
  }
]
```

```
}  
  ...  
]
```

6. Partially updating a few outlets in the resource collection

To partially update a few outlets, use the collection resource URI:

```
/jaws/config/outlets/AA2
```

The user sends an HTTP PATCH request with the proper credentials along with a JSON Patch message containing an array of *replace* operations:

Client Request

```
PATCH /jaws/config/outlets/AA1 HTTP/1.1  
Host: 10.1.2.204  
Authorization: Basic am9sc29uOnBhc3N3b3Jk  
  
{  
  "name": "Primary_Outlet_2",  
  "current_thresholds": [0.0, 0.0, 10.0, 10.0],  
  "email_notifications": "enabled",  
},
```

The server confirms the credentials are valid. After parsing the URI, it responds with HTTP status 204 No Content:

Server Client

```
HTTP/1.1 204 NO CONTENT  
...
```

Control API Use Case

It is possible for a given user that outlet and group control access may change. Therefore, it is recommended that before sending control commands for an outlet or outlet group, the user first requests to which outlets and groups they have access.

Assume the current user has control of outlets AA5, AA6, and AA7, but no groups of outlets. To learn this, the user sends a *GET* request with their credentials to the control URI.

Client Request

```
GET /jaws/control/outlets HTTP/1.1
Host: 10.1.2.204
Authorization: Basic am9sc29uOnBhc3N3b3Jk
```

The server then checks the user's credentials and sends back a list of the outlets.

Server Response

```
HTTP/1.1 200 OK
Allow: GET
Content-Type: application/json
Pragma: JAWS v1.06
Server: ServerTech-AWS/v8.0w
...
[
  {
    "id": "AA5",
    "name": "Primary_outlet_5",
    "control_state": "On",
    "state": "On",
  },
  {
    "id": "AA6",
    "name": "Primary_outlet_6",
    "control_state": "Off",
    "state": "off",
  },
  {
    "id": "AA7",
    "name": "Primary_outlet_7",
    "control_state": "On",
    "state": "On",
  }
  ...
]
```

Now the user is free to control the individual outlets by using the returned IDs in the control URI.

Limitations

JAWS protocol was designed to interface with intelligent embedded PDU controllers with limited speed and HTTPS connection resources. All connections (currently 24) are shared between API's, WEB server, and HTTPS file transfers (i.e. firmware updates). Performing simultaneous JAWS script management in conjunction with either penetration tools or typical browser requests may cause significant delays or connection dropouts (out of server resources).

We recommend that each JAWS request waits for the response before issuing another request. We also recommend that scripting tools wait 5-10 seconds (or longer) before reissuing a request, even more if the PDU becomes unresponsive after a few attempts. This could be due to DOS attacks by internal penetration testing or resource connection intensive web clients.

Many web clients open multiple current connections to improve general throughput. However, this tends to drain more resources on embedded IOT devices and may not scale well. If this becomes a concern, please consult browser specifications to determine which one is most efficient and reliable for your particular use. Particularly if JAWS is intended to be the primary form of data management along with a client web browser for verification.

Outlet control commands update asynchronously with JAWS requests. This means that outlet state information may not be updated when following with an immediate JAWS read. The delay will be based on the outlet's sequence interval, on delay, any extended delays, sequence location (group actions) as well as other loading concerns. Please consider this when polling for state changes.

Appendix B: Acronyms and Abbreviations

| | |
|------|-------------------------------------|
| AC | Alternating Current |
| ADC | Analog-to-Digital Converter |
| API | Application Programming Interface |
| DC | Direct Current |
| DHCP | Dynamic Host Configuration Protocol |
| DOS | Denial of Service |
| DNS | Domain Name Server |
| DSR | Data Signaling Rate |
| DST | Daylight Saving Time |
| FTP | File Transfer Protocol |
| FQDN | Fully Qualified Domain Name |
| GMT | Greenwich Mean Time |

Server Technology JSON API Web Service (JAWS)

| | |
|--------|--|
| HTTP | Hypertext Transfer Protocol |
| ID | Identifier |
| IPv4 | Internet Protocol version 4 |
| IPv6 | Internet Protocol version 6 |
| JAWS | JSON API Web Service |
| JSON | JavaScript Object Notation |
| LDAP | Lightweight Directory Access Protocol |
| LLDP | Link Layer Discovery Protocol |
| MD5 | Message Digest algorithm |
| OCF | Over Current Protector |
| PDU | Power Distribution Unit |
| PIN | Personal Identification Number |
| REST | Representational State Transfer |
| RFC | Request for Comments |
| SMTP | Simple Mail Transfer Protocol |
| SNTP | Simple Network Time Protocol |
| SNMP | Simple Network Management Protocol |
| SPM | Sentry Power Manager |
| SSH | Secure Shell |
| SSID | Service Set Identifier |
| TACACS | Terminal Access Controller Access Control System |
| URI | Uniform Resource Identifier |
| WLAN | Wireless Local Area Network |

Revision History

2023-Nov-30 JAWS Protocol Release V1.07

- Added /config/access "firmware_downgrade" read/write option.
- Added "disabled", "enabled" and "once" values to /config/access "firmware_downgrade". If this is set to "once", the setting will change to "disabled" after the next firmware update attempt. (2023-Oct-26)

2021-Dec-15 JAWS Protocol Release V1.06

- **DEPRECATED** /config/info/network "wlan_mac_address" option.
- **DEPRECATED** /config/wlan read/write URI. This includes "bssid", "feature", "name", "key", key_secure", "security" and "ssid" options. (2021-Sep-23)

2021-Mar-26 JAWS Protocol Release V1.05

- **DEPRECATED** /config/web "spm_secure_access" and "spm_password_reset" options. (2021-Mar-10)
- **DEPRECATED** /config/bluetooth read/write URI. This includes "discoverability", "feature", "name", "pin" and "transmission_power" options. (2021-Jan-05)
- Deprecated items listed above been removed. Older JAWS programming scripts containing these URI fields will now return a 404 (Not Found) response. This may affect users that enforce strict scripting rules. If so, we recommend removing all deprecated URI requests from existing scripts.
- Added "Limitations" section to describe best practices using JAWS.
- Expanded cURL examples.

2020-Jul-21 JAWS Protocol Release V1.04

- Added "/config/info/sntp" read-only URI.
- Added /config/info/sntp "localtime" and "status" read-only options.
- Added /config/web "ca_certificate", "server_certificate", "server_certificate_passphrase_secure" read/write options and "server_certificate_passphrase" write-only option.
- Added "ipv6 only" to /config/network "network_mode".
- "ipv4_address", "ipv4_subnet_mask", and "ipv4_gateway" in /config/info/network options are now hidden in IPv6 only mode.
- "ipv6_auto_config_address", "ipv6_address", "ipv6_gateway", and "stateless_dhcpv6_address" options are now hidden in /config/info/network in IPv4 only mode.

Server Technology JSON API Web Service (JAWS)

- Increased /config/system "location" size to 80 chars

2020-Jun-01 JAWS Protocol Release V1.03

- Added "md5 with aes", "sha", "sha with des" and "sha with aes" values to /config/users/snmpv3 "auth_method" option. (2020-May-06)

2019-Jul-02 JAWS Protocol Release V1.02

- Added password restriction security note.
- Added password restricted write access notes for /config/users/local/admn changes
- Added password restricted read access notes for /config/info/system fields
- Moved Revision History to the end of this document.
- Added /config/syslog "hostname_source" option. (2019-Dec-06)

2019-Jul-02 JAWS Protocol Release V1.01

- Added /config/ldp Link Layer Discovery Protocol URI.
- Added LLDP feature and transmit interval. (2019-Jan-31)

2018-Jul-31 JAWS Protocol Release V1.00

- Official Release. (2018-Jul-31) V1.00
- Document corrections. (2018-May-29) V.98c
- Document corrections. (2018-May-14) V.98b
- Added /config/info API. (2018-Apr-03) V.98a
- Document corrections. (2018-Mar-29) V.97c
- Updated supported URI methods. (2018-Mar-15) V.97b
- Updated /monitor interface. (2018-Mar-07) V.97
- Changed all numeric string values to primitives. (2018-Feb-12) V.96
- Updated /config interface. (2018-Jan-08) V.95
- Changed primary URI base to /jaws. (2017-Dec-19) V.94
- Added /restart API. (2017-Nov-13) V.93
- Protocol expansion and changes. (2017-Oct-18) V.92
- Created initial specification. (2017-Apr-24) V.91