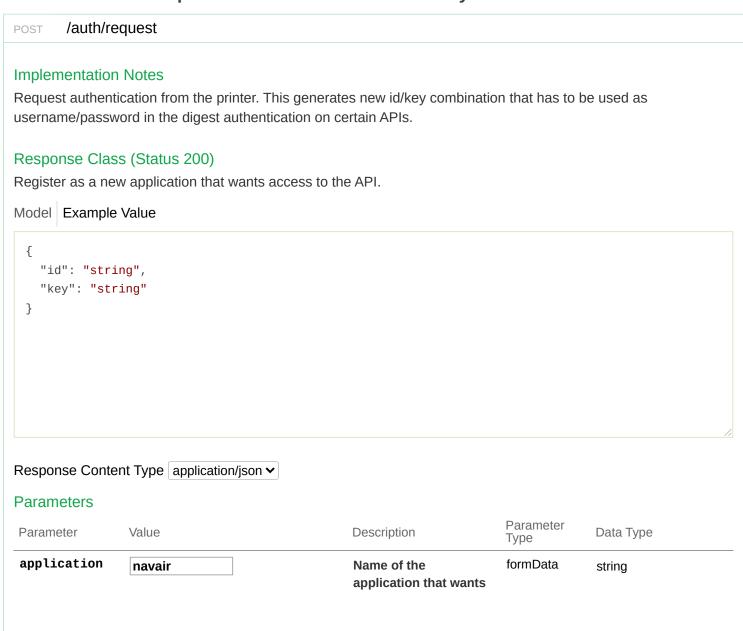# Ultimaker API

REST API for the Ultimaker 3D printer.

Authentication: Any PUT/POST/DELETE api requires authentication before it can be used. Authentication is done with http digest (RFC 2617) without fallback to basic authentication.

To get a valid username/password combination, the following process can/should be followed.

1) POST /auth/request with 'application' and 'user' as parameters. The application name and user name will be shown to the user on the printer. The reply body will contain a json reply with an 'id' and 'key' part.

2) Repeatedly GET /auth/check/ until it reports 'authorized' or 'unauthorized'. This will be reported back once the end user selects if the application is allowed to use the API.

3) [optional] test the authentication, the earlier given 'id' is the username, the 'key' is the password. Use digest authentication on GET /auth/verify to test this.

Authentication : Request and check authorization keys

POST   /auth/request

Implementation Notes

Request authentication from the printer. This generates new id/key combination that has to be used as username/password in the digest authentication on certain APIs.

Response Class (Status 200)

Register as a new application that wants access to the API.

Model | Example Value

```
{
  "id": "string",
  "key": "string"
}
```

Response Content Type application/json ▾

Parameters

Parameter	Value	Description	Parameter Type	Data Type
application	navair	**Name of the application that wants**	formData	string

Parameter	Value	Description	Parameter Type	Data Type
		access. Displayed to the user.		
user	navair	**Name of the user who wants access. Displayed to the user when confirming access.**	formData	string
host_name		Optionally the hostname of the service that is authenticating can be provided for future use.	formData	string
exclusion_key		Optionally This key can make sure only one authorisation will exist on the remote printer with this same key, This allows a new user to de-authenticate the old one preventing multiple printer controlling applications to use the printer at the same time. Naturally multiple authorisations can exist if this is omitted	formData	string

[Try it out!]   Hide Response

Curl

```
curl -X POST --header 'Content-Type: multipart/form-data' --header 'Accept: application/json'
```

Request URL

```
http://192.168.1.50/api/v1/auth/request
```

Response Body

```
{
  "id": "2728b991c40d735f30fa7acc899c9c0d",
  "key": "5a9774f8a07c707a7faeaf4d044b8af278e35393c771fdcab70a698ebf26ded4"
}
```

Response Code

```
200
```

Response Headers

```
{
   "cache-control": "no-cache, no-store, must-revalidate",
   "connection": "keep-alive",
   "content-length": "117",
   "content-type": "application/json",
   "date": "Tue, 20 Feb 2024 10:53:30 GMT",
   "expires": "0",
   "pragma": "no-cache",
   "server": "nginx/1.14.2"
}
```

GET   /auth/check/{id}

Implementation Notes

Check if the given ID is authorized for printer access. Will return 'authorized' when the end user has selected that this application is allowed to use the printer. Will return 'unauthorized' when the user has selected that the application is not allowed to access the printer. Will return 'unknown' when the end user has not selected any option yet.

Response Class (Status 200)

result of the authorization check.

Model | Example Value

```
{
   "message": "authorized"
}
```

Response Content Type application/json ⌄

Parameters

Parameter	Value	Description	Parameter Type	Data Type
id	2728b991c40d7:	**id returned from the /auth/request call**	path	string

Try it out!   Hide Response

Curl

```
curl -X GET --header 'Accept: application/json' 'http://192.168.1.50/api/v1/auth/check/2728b99
```

Request URL

```
http://192.168.1.50/api/v1/auth/check/2728b991c40d735f30fa7acc899c9c0d
```

Response Body

```
{
    "message": "unknown"
}
```

Response Code

```
200
```

Response Headers

```
{
    "cache-control": "no-cache, no-store, must-revalidate",
    "connection": "keep-alive",
    "content-length": "22",
    "content-type": "application/json",
    "date": "Tue, 20 Feb 2024 10:55:04 GMT",
    "expires": "0",
    "pragma": "no-cache",
    "server": "nginx/1.14.2"
}
```

GET   /auth/verify

Implementation Notes

This API call always does authentication checking for digest authentication. Invalid digest id/key combinations will generate a 401 result.

Response Class (Status 200)

Verify check successful, digest authentication is valid.

Model | Example Value

```
{
    "message": "ok"
}
```

Response Content Type application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
401	Not authorized. Check or request your id/key combination, and/or http digest implementation.		

Try it out!	Hide Response

Curl

```
curl -X GET --header 'Accept: application/json' 'http://192.168.1.50/api/v1/auth/verify'
```

Request URL

```
http://192.168.1.50/api/v1/auth/verify
```

Response Body

```
{
  "message": "Authorization required."
}
```

Response Code

```
403
```

Response Headers

```
{
  "cache-control": "no-cache, no-store, must-revalidate",
  "connection": "keep-alive",
  "content-length": "38",
  "content-type": "application/json",
  "date": "Tue, 20 Feb 2024 10:55:22 GMT",
  "expires": "0",
  "pragma": "no-cache",
  "server": "nginx/1.14.2"
}
```

Materials : All materials known by the printer

GET	/materials

Response Class (Status 200)

All known material XML files, one string for each material.

Model Example Value

```
[
  "string"
]
```

Response Content Type application/json ▾

[Try it out!]   <u>Hide Response</u>

Curl

```
curl -X GET --header 'Accept: application/json' 'http://192.168.1.50/api/v1/materials'
```

Request URL

```
http://192.168.1.50/api/v1/materials
```
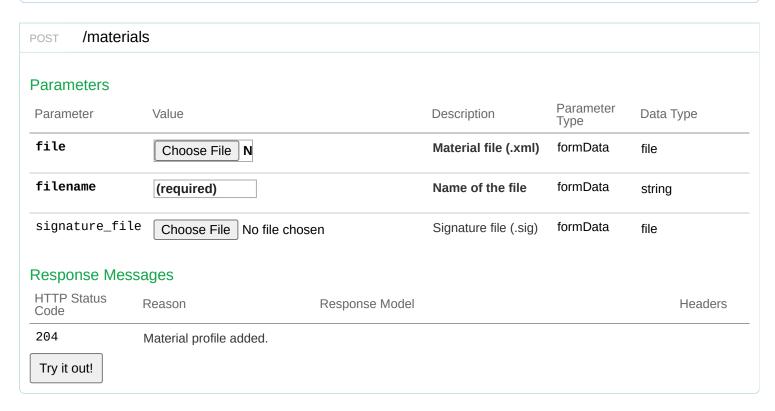
Response Body

```
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<!--\nThis is the baseline profile for Carbo
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<!--\nGeneric Nylon profile. The data in thi
    "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<fdmmaterial xmlns=\"http://www.ultimaker.co
]
```

Response Code
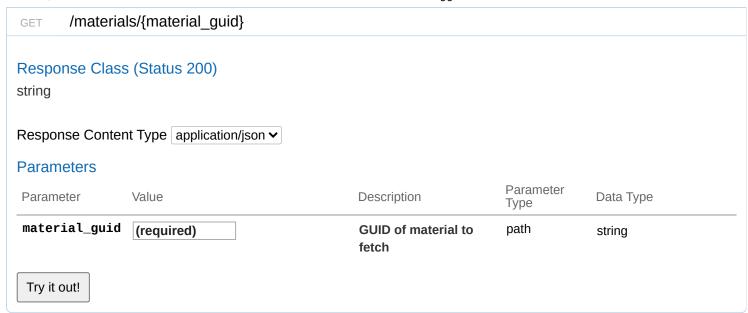
```
200
```

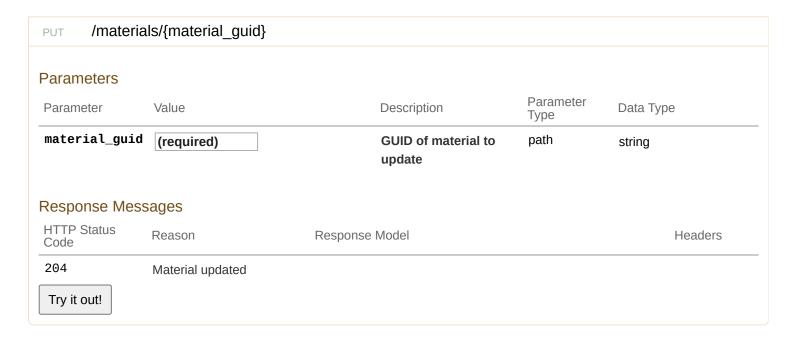## Response Headers

```
{
    "cache-control": "no-cache, no-store, must-revalidate",
    "connection": "keep-alive",
    "content-length": "686384",
    "content-type": "application/json",
    "date": "Tue, 20 Feb 2024 10:55:37 GMT",
    "expires": "0",
    "pragma": "no-cache",
    "server": "nginx/1.14.2"
}
```

POST   /materials

Parameters

Parameter	Value	Description	Parameter Type	Data Type
file	Choose File N	**Material file (.xml)**	formData	file
filename	(required)	**Name of the file**	formData	string
signature_file	Choose File No file chosen	Signature file (.sig)	formData	file

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Material profile added.		

Try it out!

DELETE   /materials/{material_guid}

Parameters

Parameter	Value	Description	Parameter Type	Data Type
material_guid	(required)	**GUID of material to delete**	path	string

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Material deleted		

Try it out!

GET /materials/{material_guid}

Response Class (Status 200)
string

Response Content Type [application/json ▾]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
material_guid	(required)	**GUID of material to fetch**	path	string

Try it out!

PUT /materials/{material_guid}

Parameters

Parameter	Value	Description	Parameter Type	Data Type
material_guid	(required)	**GUID of material to update**	path	string

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Material updated		

Try it out!

Printer : Printer state

GET /printer

Implementation Notes
Returns printer object

Response Class (Status 200)
Printer object

Model | Example Value

```
{
  "heads": [
    {
```

```json
        "position": {
          "x": 0,
          "y": 0,
          "z": 0
        },
        "max_speed": {
          "x": 0,
```

Response Content Type application/json ˅

Try it out!

GET   /printer/diagnostics/cap_sensor_noise

Implementation Notes

Calculates noise variances on the cap sensor by measuring the sensor data and calculating the noise

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	A list of dictionaries containing the min, max, avg and stddev^2 values		
400	When a timeout occurs (taking too long to get the data) or when the printer is already busy		

Try it out!

GET   /printer/diagnostics/temperature_flow/{sample_count}

Implementation Notes

Gets historical temperature & flow data

Parameters

Parameter	Value	Description	Parameter Type	Data Type
sample_count	(required)	**The number of samples to get**	path	integer
csv		If not zero, return the results as comma separated values instead of a normal json response.	query	integer

Parameter	Value	Description	Parameter Type	Data Type
max_timestamp		If specified, an older data set can be retrieved by specifying the oldest timestamp of any previously returned data	query	double

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	A 2 dimensional array of sample data. First row of the array contains names of each column. All the other rows contain the actual sample data.		

Try it out!

GET   /printer/diagnostics/probing_report

Response Class (Status 200)

file

Response Content Type application/json ▼

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	When no probing report is found.		

Try it out!

GET   /printer/status

Implementation Notes

Get the status of the printer

Response Class (Status 200)

Global status of the printer, most interesting ones are 'idle' which means the printer can accept a print job. And 'printing' which means the printer is actively working on a print job.

Model	Example Value

```
"booting"
```

Response Content Type application/json ▾

Try it out!

GET   /printer/led

Implementation Notes
Returns the hue, saturation, and value (HSV) of the case lighting

Response Class (Status 200)
HSV the case lighting

Model | Example Value

```
{
  "hue": 0,
  "saturation": 0,
  "brightness": 0
}
```

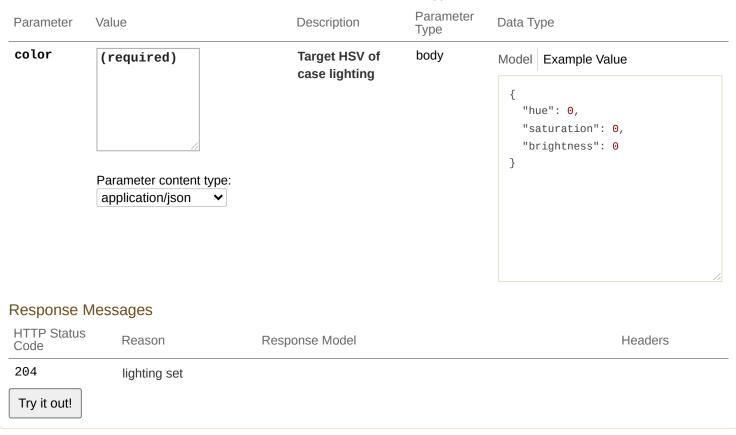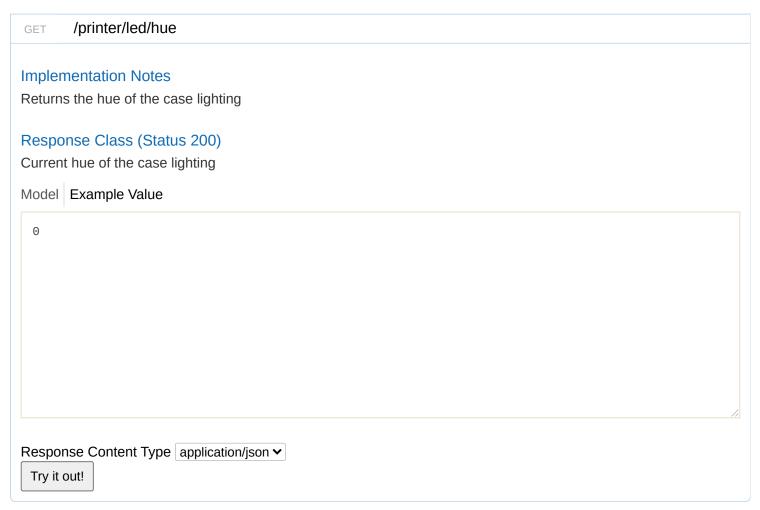Response Content Type application/json ▾

Try it out!

PUT   /printer/led

Implementation Notes
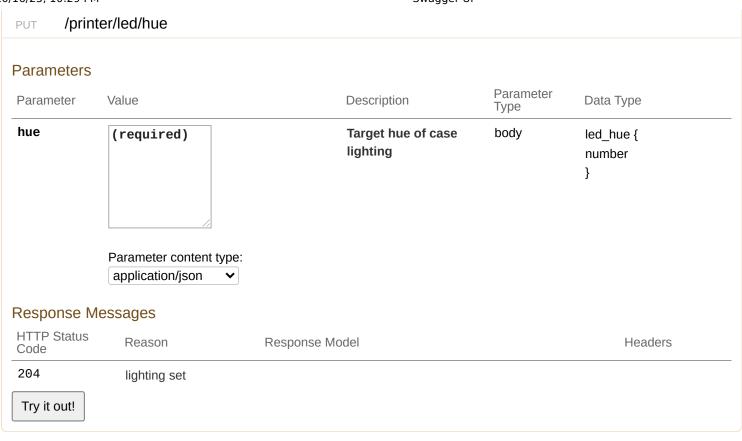Sets the hue, saturation, and value (HSV) of the case lighting

Parameters

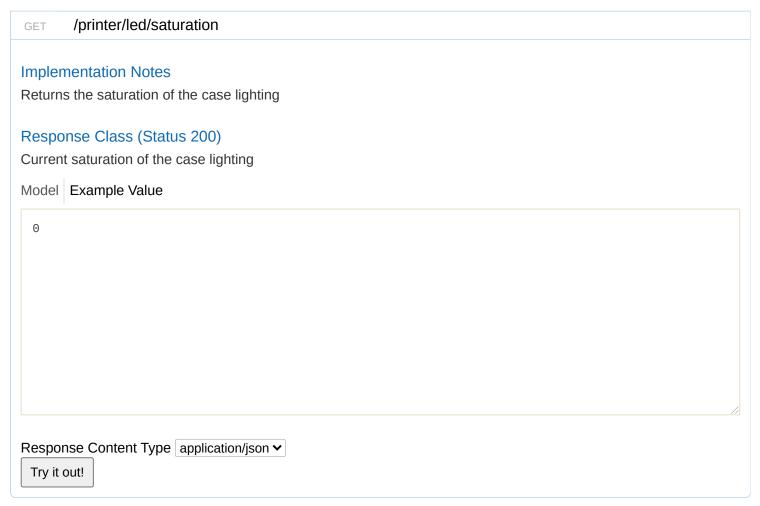| Parameter	Value	Description	Parameter Type	Data Type
color	(required) Parameter content type: application/json ▾	**Target HSV of case lighting**	body	Model | Example Value ``` { "hue": 0, "saturation": 0, "brightness": 0 } ```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	lighting set		

Try it out!

GET /printer/led/hue

Implementation Notes

Returns the hue of the case lighting

Response Class (Status 200)

Current hue of the case lighting

Model | Example Value

```
0
```

Response Content Type application/json ▾

Try it out!

PUT   /printer/led/hue

Parameters

Parameter	Value	Description	Parameter Type	Data Type
hue	(required)	**Target hue of case lighting**	body	led_hue { number }

Parameter content type:

application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	lighting set		

Try it out!

GET   /printer/led/saturation

Implementation Notes

Returns the saturation of the case lighting

Response Class (Status 200)

Current saturation of the case lighting

Model | Example Value

```
0
```

Response Content Type application/json ⌄

Try it out!

PUT   /printer/led/saturation

Parameters

Parameter	Value	Description	Parameter Type	Data Type
saturation	**(required)**	**Target saturation of case lighting**	body	led_saturation { number }

Parameter content type:

[application/json ⌄]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	lighting set		

[Try it out!]

GET   /printer/led/brightness

Implementation Notes

Returns the brightness of the case lighting

Response Class (Status 200)

Current brightness of the case lighting

Model | Example Value

```
0
```

Response Content Type [application/json ⌄]

[Try it out!]

PUT   /printer/led/brightness

Parameters

Parameter	Value	Description	Parameter Type	Data Type
value	(required)	**Target brightness of case lighting**	body	led_brightness { number }

Parameter content type:

application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	lighting set		

Try it out!

POST   /printer/led/blink

Parameters

Parameter	Value	Description	Parameter Type	Data Type
blink			body	Model ⎪ Example Value

```
{
  "frequency": 0,
  "count": 0
}
```

Parameter content type:

application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	blink set		
400	This is returned when frequency <= 0 or count <= 0 with a message		

Try it out!

GET   /printer/heads

Implementation Notes

Returns all heads of the printer

Response Class (Status 200)

Model │ Example Value

```
[
  {
    "position": {
      "x": 0,
      "y": 0,
      "z": 0
    },
    "max_speed": {
      "x": 0,
      "y": 0,
```

Response Content Type [application/json ⌄]

Try it out!

GET   /printer/heads/{head_id}

Implementation Notes

Returns head by ID

Response Class (Status 200)

Model │ Example Value

```
{
  "position": {
    "x": 0,
    "y": 0,
    "z": 0
  },
  "max_speed": {
    "x": 0,
    "y": 0,
    "z": 0
```

Response Content Type [application/json ⌄]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head to fetch**	path	long

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	Head was not found. Note that this means that all deeper (eg: getting position, extruders, etc.) calls will also return a 404		

Try it out!

GET   /printer/heads/{head_id}/position

Implementation Notes

Returns position of head by ID

Response Class (Status 200)

Model | Example Value

```
{
   "x": 0,
   "y": 0,
   "z": 0
}
```

Response Content Type application/json ▾

Parameters

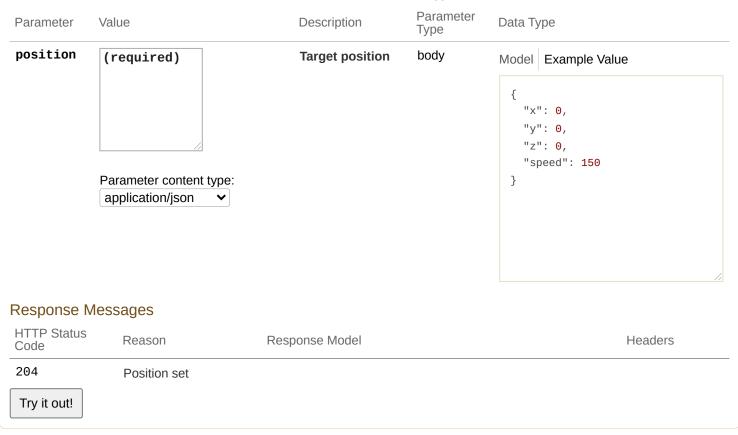| Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head of which to get position. Note that this position also has a Z component. This api assumes that the head is the only part that moves.**	path	long

Try it out!

POST   /printer/heads/{head_id}/position

Implementation Notes

A POST to the position is used to specific actions for the position.

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the hotend is fetched**	path	long
action	(required) Parameter content type: application/json ⌄	**Which action to do on the position. Currently a single action is supported 'home', which sends the head to the endstop positions and resets the origin of the position so 0,0,0 is the front left corner on the print bed.**	body	string

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Position set		

Try it out!

PUT   /printer/heads/{head_id}/position

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the position is changed**	path	long

Parameter	Value	Description	Parameter Type	Data Type

position	(required)
	
	Parameter content type:
	[application/json ▼]
		Target position	body	Model | Example Value
				
				{
				  "x": 0,
				  "y": 0,
				  "z": 0,
				  "speed": 150
				}

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Position set		

[Try it out!]

GET   /printer/heads/{head_id}/max_speed

Implementation Notes

Returns max speed of head by ID

Response Class (Status 200)

Model | Example Value

```
{
   "x": 0,
   "y": 0,
   "z": 0
}
```

Response Content Type [application/json ▼]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head of which to get the max speed of.**	path	long

Parameter	Value	Description	Parameter Type	Data Type
		Note that this speed also has a Z component. This api assumes that the head is the only part that moves.		

Try it out!

PUT   /printer/heads/{head_id}/max_speed

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)		path	long
speed	(required)	**Target maximum speed for each axis.**	body	Model | Example Value

Parameter content type:
application/json ⌄

Model \| Example Value

```
{
    "x": 0,
    "y": 0,
    "z": 0
}
```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Max speed set		

Try it out!

GET   /printer/heads/{head_id}/acceleration

Implementation Notes

Returns the default acceleration of head by ID.

Response Class (Status 200)

number

Response Content Type application/json ⌄

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head of which to get the default acceleration of. Note that this speed also has a Z component. This API assumes that the head is the only part that moves.**	path	long

Try it out!

PUT   /printer/heads/{head_id}/acceleration

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)		path	long
acceleration	(required)	**Target default acceleration.**	body	double

Parameter content type:
application/json ▾

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	acceleration speed set		

Try it out!

GET   /printer/heads/{head_id}/jerk

Implementation Notes

Returns jerk of head by ID

Response Class (Status 200)

Model | Example Value

```
 {
    "x": 0,
    "y": 0,
    "z": 0
 }
```

Response Content Type application/json ▼

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head of which to get the jerk of. Note that this speed also has a Z component. This API assumes that the head is the only part that moves.**	path	long

Try it out!

PUT   /printer/heads/{head_id}/jerk

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)		path	long
jerk	(required)	**Target jerk**	body	Model | Example Value

Parameter content type:
application/json   ▼

Model   Example Value

```
{
   "x": 0,
   "y": 0,
   "z": 0
}
```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Jerk set		

Try it out!

GET /printer/bed

Implementation Notes

Returns bed object

Response Class (Status 200)

bed object

Model | Example Value

```
{
  "type": "string",
  "temperature": {
    "target": 0,
    "current": 0
  },
  "pre_heat": {
    "temperature": 0,
    "timeout": 0
  }
}
```

Response Content Type application/json ⌄

Try it out!

GET /printer/bed/temperature

Implementation Notes

Returns temperature of bed

Response Class (Status 200)

Temperature of the bed

Model | Example Value

```
{
  "target": 0,
  "current": 0
}
```

Response Content Type application/json ⌄

Try it out!

PUT /printer/bed/temperature

Parameters

Parameter	Value	Description	Parameter Type	Data Type
temperature	(required)	**Target temperature of bed**	formData	double

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Temperature set		

Try it out!

GET /printer/bed/pre_heat

Implementation Notes

Returns status of pre-heating the heated bed.

Response Class (Status 200)

Status of pre-heating the heated bed.

Model | Example Value

```
{
  "active": true,
  "remaining": 0
}
```

Response Content Type application/json ⌄

Try it out!

PUT   /printer/bed/pre_heat

Parameters

Parameter	Value	Description	Parameter Type	Data Type
temperature	(required) Parameter content type: application/json ⌄		body	Model | Example Value ```{ "temperature": 0, "timeout": 0 }```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Preheating Temperature set		
400	Bad request (invalid parameters)		

Try it out!

GET   /printer/bed/type

Implementation Notes

Returns the type of the bed.

Response Class (Status 200)

string

Response Content Type application/json ⌄

Try it out!

GET   /printer/heads/{head_id}/extruders

Implementation Notes

Returns all extruders of a head

Response Class (Status 200)

Model | Example Value

```
[
  {
    "hotend": {
      "id": "string",
      "serial": "string",
      "temperature": {
        "target": 0,
        "current": 0
      },
      "offset": {
```

Response Content Type application/json ▼

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the extruders are fetched**	path	long

Try it out!

GET /printer/heads/{head_id}/extruders/{extruder_id}
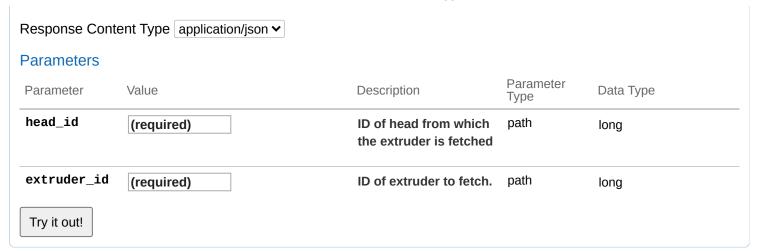
Implementation Notes

Returns extruder by ID

Response Class (Status 200)

Model | Example Value

```
{
  "hotend": {
    "id": "string",
    "serial": "string",
    "temperature": {
      "target": 0,
      "current": 0
    },
    "offset": {
      "x": 0,
```

Response Content Type [application/json ▾]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the extruder is fetched**	path	long
extruder_id	(required)	**ID of extruder to fetch.**	path	long

[Try it out!]

GET   /printer/heads/{head_id}/extruders/{extruder_id}/hotend/offset

Implementation Notes

Returns offset of hotend with respect to head

Response Class (Status 200)

Model | Example Value

```
{
    "x": 0,
    "y": 0,
    "z": 0,
    "state": "valid"
}
```

Response Content Type [application/json ▾]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the extruder is fetched**	path	long
extruder_id	(required)	**ID of extruder to fetch**	path	long

[Try it out!]

GET   /printer/heads/{head_id}/extruders/{extruder_id}/feeder

Implementation Notes

Returns feeder of selected extruder

Response Class (Status 200)

Model | Example Value

```
{
  "position": 0,
  "max_speed": 0,
  "jerk": 0,
  "acceleration": 0
}
```

Response Content Type application/json ✔

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	ID of head from which the extruder is fetched	path	long
extruder_id	(required)	ID of extruder from which the feeder is fetched	path	long

Try it out!

GET   /printer/heads/{head_id}/extruders/{extruder_id}/feeder/jerk

Implementation Notes

Returns jerk of feeder

Response Class (Status 200)

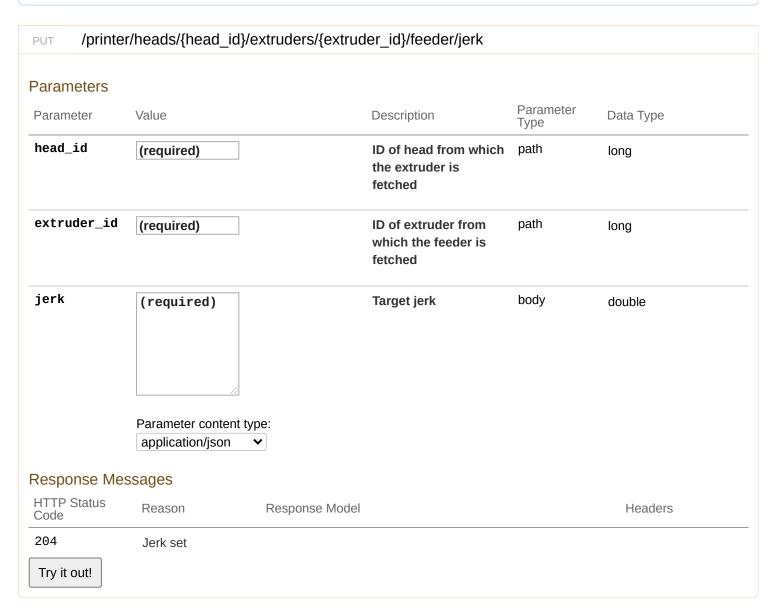number

Response Content Type application/json ✔

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	ID of head from which the extruder is fetched	path	long
extruder_id	(required)	ID of extruder from which the feeder is fetched	path	long

Try it out!

PUT   /printer/heads/{head_id}/extruders/{extruder_id}/feeder/jerk

Parameters

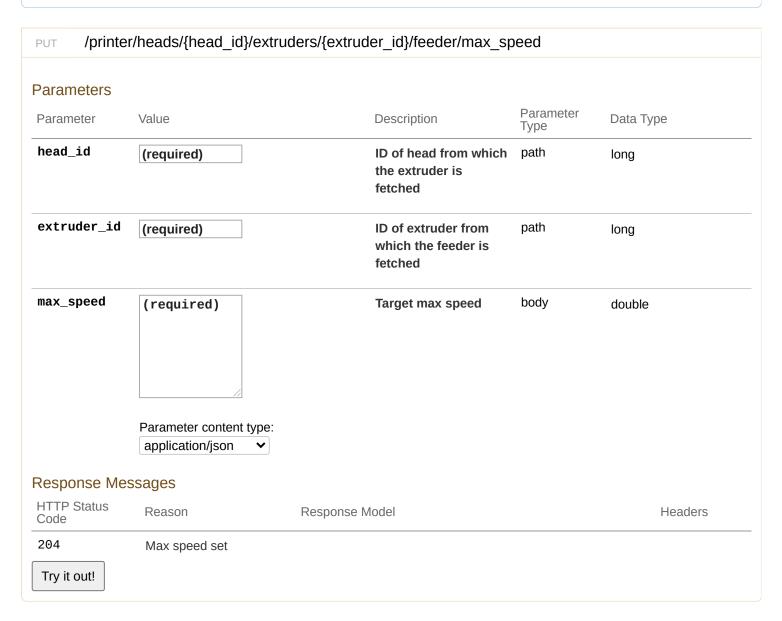| Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	ID of head from which the extruder is fetched	path	long
extruder_id	(required)	ID of extruder from which the feeder is fetched	path	long
jerk	(required)	Target jerk	body	double

Parameter content type:
application/json

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Jerk set		

Try it out!

GET   /printer/heads/{head_id}/extruders/{extruder_id}/feeder/max_speed

Implementation Notes

Returns max_speed of feeder.

Response Class (Status 200)

number

Response Content Type [application/json ▼]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	[(required)]	**ID of head from which the extruder is fetched**	path	long
extruder_id	[(required)]	**ID of extruder from which the feeder is fetched**	path	long

[Try it out!]

PUT   /printer/heads/{head_id}/extruders/{extruder_id}/feeder/max_speed

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	[(required)]	**ID of head from which the extruder is fetched**	path	long
extruder_id	[(required)]	**ID of extruder from which the feeder is fetched**	path	long
max_speed	[(required)]	**Target max speed**	body	double

Parameter content type:
[application/json   ▼]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Max speed set		

[Try it out!]

GET   /printer/heads/{head_id}/extruders/{extruder_id}/feeder/acceleration

Implementation Notes

Returns acceleration of feeder.

Response Class (Status 200)

number

Response Content Type [application/json ⌄]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the extruder is fetched**	path	long
extruder_id	(required)	**ID of extruder from which the feeder is fetched**	path	long

[Try it out!]

PUT	/printer/heads/{head_id}/extruders/{extruder_id}/feeder/acceleration

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the extruder is fetched**	path	long
extruder_id	(required)	**ID of extruder from which the feeder is fetched**	path	long
acceleration	(required)	**Target acceleration speed**	body	double

Parameter content type:
[application/json   ⌄]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Acceleration set		

Try it out!

GET /printer/heads/{head_id}/extruders/{extruder_id}/active_material

Implementation Notes

Get the active material of the extruder

Response Class (Status 200)

Model | Example Value

```
{
  "length_remaining": 0,
  "GUID": "string"
}
```

Response Content Type application/json ▾

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the extruder is fetched**	path	long
extruder_id	(required)	**ID of extruder**	path	long

Try it out!

GET /printer/heads/{head_id}/extruders/{extruder_id}/active_material/length_remaining

Implementation Notes

length of material remaining on spool in mm. Or -1 if no value is known.
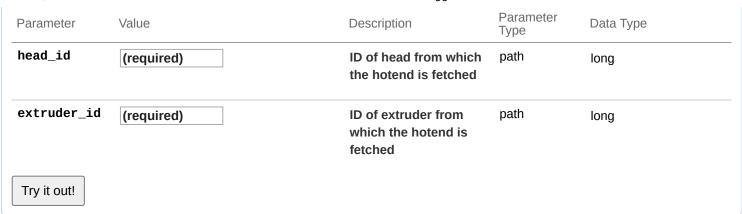
Response Class (Status 200)

number

Response Content Type application/json ▾

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the hotend is fetched**	path	long
extruder_id	(required)	**ID of extruder from which the hotend is fetched**	path	long

Try it out!

GET   /printer/heads/{head_id}/extruders/{extruder_id}/hotend

Implementation Notes

Returns hotend of extruder

Response Class (Status 200)

Model | Example Value

```
{
  "id": "string",
  "serial": "string",
  "temperature": {
    "target": 0,
    "current": 0
  },
  "offset": {
    "x": 0,
    "y": 0,
```

Response Content Type application/json ▾

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the hotend is fetched**	path	long
extruder_id	(required)	**ID of extruder from which the hotend is fetched**	path	long

Try it out!

GET   /printer/heads/{head_id}/extruders/{extruder_id}/hotend/temperature

Implementation Notes

Returns temperature of extruder

Response Class (Status 200)

Temperature of the hotend

Model | Example Value

```
{
  "target": 0,
  "current": 0
}
```

Response Content Type application/json ⌄

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the hotend is fetched**	path	long
extruder_id	(required)	**ID of extruder from which the hotend is fetched**	path	long

Try it out!

PUT   /printer/heads/{head_id}/extruders/{extruder_id}/hotend/temperature

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the hotend is fetched**	path	long
extruder_id	(required)	**ID of extruder from which the hotend is fetched**	path	long

Parameter	Value	Description	Parameter Type	Data Type
temperature	(required)	**Target temperature of nozzle**	formData	double

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Temperature set		

Try it out!

GET   /printer/heads/{head_id}/extruders/{extruder_id}/active_material/guid

Implementation Notes
Returns the GUID of the active material

Response Class (Status 200)
string

Response Content Type [application/json ⌄]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	**ID of head from which the hotend is fetched**	path	long
extruder_id	(required)	**ID of extruder from which the hotend is fetched**	path	long

Try it out!

GET   ~~/printer/heads/{head_id}/extruders/{extruder_id}/active_material/GUID~~

Warning: Deprecated

Implementation Notes
Returns the GUID of the active material

Response Class (Status 200)
string

Response Content Type [application/json ⌄]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
head_id	(required)	ID of head from which the hotend is fetched	path	long
extruder_id	(required)	ID of extruder from which the hotend is fetched	path	long

Try it out!

POST   /printer/validate_header

Response Class (Status 200)

All header validation mishaps

Model | Example Value

```
[
  {
    "fault_code": "HEADER_NOT_PRESENT",
    "fault_level": "WARNING",
    "message": "string",
    "data": "string"
  }
]
```

Response Content Type application/json ∨

Parameters

Parameter	Value	Description	Parameter Type	Data Type
file	Choose File N	File that needs to be printed (.gcode, .gcode.gz)	formData	file

Response Messages

HTTP Status Code	Reason	Response Model	Headers
400	No validation checked because file is missing.		

Try it out!

Network : Network state

GET   /printer/network

Implementation Notes

Returns network state

Response Class (Status 200)

Network object

| Model | Example Value |

```
      "ssid": "string",
      "security_required": true,
      "strength": 0
    }
  ],
  "ethernet": {
    "connected": true,
    "enabled": true
  }
}
```

Response Content Type [application/json ▾]

[Try it out!]

GET   /printer/network/wifi_networks

Implementation Notes

Returns a list of available wifi networks

Response Class (Status 200)

List of network ssid'

| Model | Example Value |

```
[
  {
    "ssid": "string",
    "security_required": true,
    "strength": 0
  }
]
```

Response Content Type application/json ▼

Try it out!

DELETE   /printer/network/wifi_networks/{ssid}

Implementation Notes

Forget a wifi network

Parameters

Parameter	Value	Description	Parameter Type	Data Type
ssid	(required)	**ssid of the network to forget.**	path	string

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204			

Try it out!

PUT   /printer/network/wifi_networks/{ssid}

Implementation Notes

Connect to a wifi network

Parameters

Parameter	Value	Description	Parameter Type	Data Type
ssid	(required)	**ssid of the network to connect with.**	path	string
passphrase	(required)	**Passphrase of network to connect with**	formData	string

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204			

Try it out!

PrintJob : Currently running print

GET	/print_job

Response Class (Status 200)

Print job object

Model | Example Value

```
{
  "time_elapsed": 0,
  "time_total": 0,
  "datetime_started": "2025-10-17T02:25:35.974Z",
  "datetime_finished": "2025-10-17T02:25:35.974Z",
  "datetime_cleaned": "2025-10-17T02:25:35.974Z",
  "source": "string",
  "source_user": "string",
  "source_application": "string",
  "name": "string",
```

Response Content Type application/json ▼

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

POST	/print_job

Response Class (Status 201)

Print job accepted

Model | Example Value

```
{
  "message": "string",
  "uuid": "string"
}
```

Response Content Type application/json ▼

Parameters

Parameter	Value	Description	Parameter Type	Data Type
jobname	(required)	**Name of the print job.**	formData	string
file	Choose File N	**File that needs to be printed (.gcode, .gcode.gz, .ufp)**	formData	file

Try it out!

GET   /print_job/name

Implementation Notes

Name of print job

Response Class (Status 200)

string

Response Content Type application/json ▾

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/datetime_started

Implementation Notes

The moment the current print job was started

Response Class (Status 200)

date-time

Response Content Type application/json ▾

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   **/print_job/datetime_finished**

Implementation Notes

The moment the last print job finished.

Response Class (Status 200)

date-time

Response Content Type `application/json ▾`

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   **/print_job/datetime_cleaned**

Implementation Notes

The moment the last print job was cleaned from the build plate

Response Class (Status 200)

date-time

Response Content Type `application/json ▾`

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   **/print_job/source**

Implementation Notes

From what source was the print job started. USB means it's started manually from the USB drive. WEB_API means it's being received by the WEB API. CALIBRATION_MENU means it's printing the XY offset print

Response Class (Status 200)

string

Response Content Type `application/json ▾`

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/source_user

Implementation Notes

If the origin equals to WEB_API, then this will return the user who initiated the job

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/source_application

Implementation Notes

If the origin equals to WEB_API, then this will return the application that sent the job

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

Response Messages
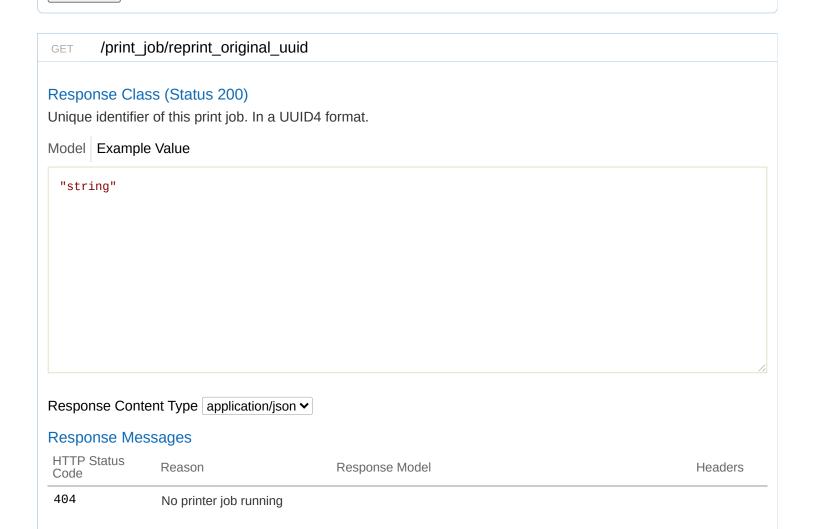
HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/uuid

Response Class (Status 200)

Unique identifier of this print job. In a UUID4 format.

Model | Example Value

```
"string"
```

Response Content Type application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET /print_job/reprint_original_uuid

Response Class (Status 200)

Unique identifier of this print job. In a UUID4 format.

Model | Example Value

```
"string"
```

Response Content Type application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/time_elapsed

Implementation Notes

Get the time elapsed (in seconds) since starting this print, including pauses etc.

Response Class (Status 200)

integer

Response Content Type application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/time_total

Implementation Notes

Get the (estimated) total time in seconds for this print, excluding pauses etc.

Response Class (Status 200)

integer

Response Content Type application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/progress

Implementation Notes

Get the (estimated) progress for the current print job, a value between 0 and 1

Response Class (Status 200)

number

Response Content Type application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/gcode

Response Class (Status 200)

file

Response Content Type application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running or no gcode found		

Try it out!

GET   /print_job/container

Response Class (Status 200)

file

Response Content Type application/json ⌄

Response Messages

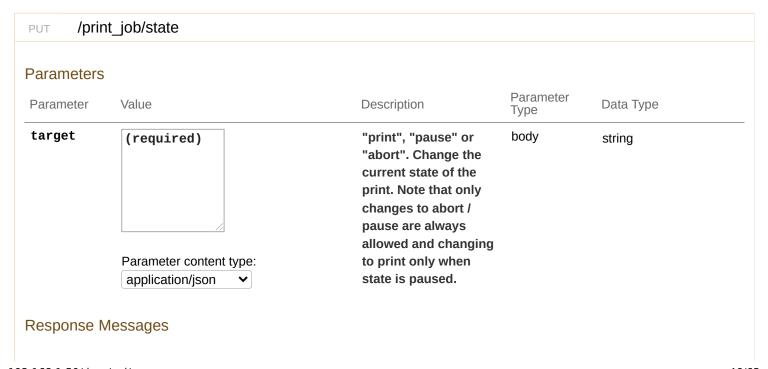| HTTP Status Code	Reason	Response Model	Headers
404	No printer job running or no file found		

Try it out!

GET   /print_job/pause_source

Implementation Notes

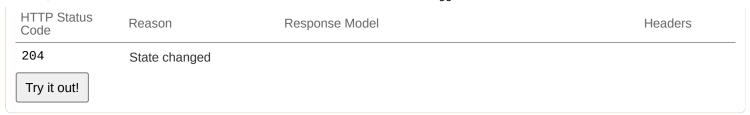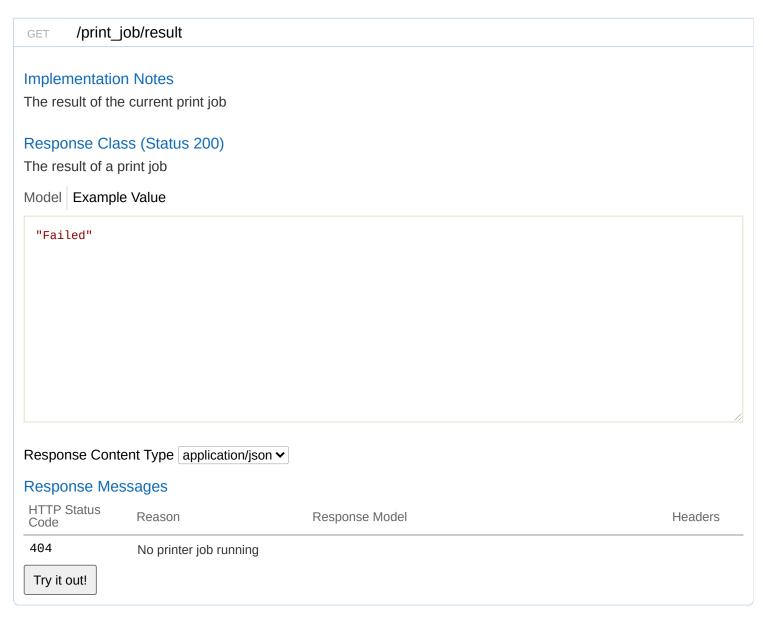If the printer is paused this exposes what initiated the pause

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

GET   /print_job/state

Implementation Notes

Get the print job state

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

PUT   /print_job/state

Parameters

Parameter	Value	Description	Parameter Type	Data Type
target	(required) Parameter content type: [application/json ⌄]	**"print", "pause" or "abort". Change the current state of the print. Note that only changes to abort / pause are always allowed and changing to print only when state is paused.**	body	string

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	State changed		

Try it out!

GET   /print_job/result

Implementation Notes

The result of the current print job

Response Class (Status 200)

The result of a print job

Model | Example Value

```
"Failed"
```

Response Content Type application/json ⌄

Response Messages

HTTP Status Code	Reason	Response Model	Headers
404	No printer job running		

Try it out!

System : Device information

GET   /system

Implementation Notes

Get the entire system object

Response Class (Status 200)

Model | Example Value

```
{
  "name": "string",
  "platform": "string",
  "hostname": "string",
  "firmware": "string",
  "country": "string",
  "language": "string",
  "uptime": 0,
  "time": {
    "utc": 0
```

Response Content Type application/json ⌄

Try it out!

GET   /system/platform

Implementation Notes

A string identifying the underlying platform in human readable form.

Response Class (Status 200)

string

Response Content Type application/json ⌄

Try it out!

GET   /system/hostname

Implementation Notes

The hostname of this machine

Response Class (Status 200)

string

Response Content Type application/json ⌄

Try it out!

GET   /system/firmware

Implementation Notes

The version of the firmware currently running

Response Class (Status 200)
string

Response Content Type [application/json ▾]

[Try it out!]

PUT   /system/firmware

Implementation Notes
Trigger a firmware update. Printer will try to fetch & install the latest version.

Parameters

Parameter	Value	Description	Parameter Type	Data Type
update_type		Type of the firmware update to do. Can be 'latest' or 'stable'	body	string

Parameter content type:
[application/json ▾]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Update started		

[Try it out!]

GET   /system/firmware/status

Implementation Notes
Get the status of the firmware update

Response Class (Status 200)
string

Response Content Type [application/json ▾]

[Try it out!]

GET   /system/firmware/stable

Implementation Notes

Get the version available for updating in the 'stable' release path, if you are subscibed to this channel

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

[Try it out!]

GET   /system/firmware/latest

Implementation Notes

Get the version available for updating in the 'latest' release path, if you are subscibed to this channel

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

[Try it out!]

GET   /system/memory

Implementation Notes

The current memory usage

Response Class (Status 200)

Memory usage

Model | Example Value

```
{
  "total": 0,
  "used": 0
}
```

Response Content Type [application/json ⌄]

Try it out!

GET   /system/time

Implementation Notes

The current UTC time

Response Class (Status 200)

Time

Model | Example Value

```
{
  "utc": 0
}
```

Response Content Type application/json ▼

Try it out!

GET   /system/log

Implementation Notes

Get the logs of the system

Response Class (Status 200)

Log data

Model | Example Value

```
[
  "string"
]
```

Response Content Type [application/json ▾]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
boot	[ ]	Allow a boot parameter to get logs from previous boot sessions, default is 0 which is the current boot. -1 is the previous boot.	query	double
lines	[ ]	Allow a lines parameter to specify the number of lines to get from the log. Defaults to 50	query	double

[Try it out!]

GET   /system/name

Implementation Notes

Get the name of the system

Response Class (Status 200)

string

Response Content Type [application/json ▾]

[Try it out!]

PUT   /system/name

Parameters

Parameter	Value	Description	Parameter Type	Data Type
name	(required)	**Target name of machine**	body	string

Parameter content type:
[application/json ▾]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Name set		
400	Name is not set, because an invalid name is specified		

Try it out!

GET   /system/country

Implementation Notes

Get the country of the system

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

Try it out!

PUT   /system/country

Parameters

Parameter	Value	Description	Parameter Type	Data Type
country	(required)	**Target country of system**	body	string

Parameter content type:
[application/json   ⌄]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	Country set		

Try it out!

GET   /system/is_country_locked

Implementation Notes

Is the country locked for this system?

Response Class (Status 200)

boolean

Response Content Type [application/json ⌄]

Try it out!

GET   /system/language

Implementation Notes

Get the language of the system

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

Try it out!

GET   /system/uptime

Implementation Notes

Get the uptime of the system in seconds

Response Class (Status 200)

integer

Response Content Type [application/json ⌄]

Try it out!

GET   /system/type

Implementation Notes

Get the type of machine that we are talking with. Always returns "3D printer"

Response Class (Status 200)

string

Response Content Type [application/json ⌄]

Try it out!

GET   **/system/variant**

Implementation Notes

Gets the machines variant. Currently this can return "Ultimaker 3", "Ultimaker 3 extended" or "Ultimaker S5".

Response Class (Status 200)

string

Response Content Type application/json ⌄

Try it out!

GET   **/system/hardware**

Implementation Notes

Gets the hardware number and revision identifiers

Response Class (Status 200)

Machine hardware type and revision ID

Model | Example Value

```
{
  "typeid": 0,
  "revision": 0
}
```

Response Content Type application/json ⌄

Try it out!

GET   **/system/hardware/typeid**

Implementation Notes

Gets the machine type as number identifier. This identifier IDs a specific form of hardware

Response Class (Status 200)

integer

Response Content Type `application/json ▾`

Try it out!

GET **/system/hardware/revision**

Implementation Notes

The same machine could have different hardware revisions. When hardware is updated and software needs to know that hardware has changed, this revision number is changed. Currently only revision 0 is known.

Response Class (Status 200)

integer

Response Content Type `application/json ▾`

Try it out!

GET **/system/guid**

Implementation Notes

Every machine has a unique identifier stored inside the board. This allows for unique identification of this machine. This identifier is a UUID4.

Response Class (Status 200)

string

Response Content Type `application/json ▾`

Try it out!

PUT **/system/display_message**

Implementation Notes

Enable external services to display a message screen on the printer.

Parameters

Parameter	Value	Description	Parameter Type	Data Type
message_data	(required) Parameter content type: application/json ⌄	**Data to display on the screen of the printer.**	body	Model | Example Value ``` { "message": "string", "button_caption": "string" } ```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Message is being displayed on the printer.		
400	No message specified.		
405	Message cannot be displayed because the printer is busy.		

Try it out!

History : History of this printer

GET   /history/print_jobs

Response Class (Status 200)

All past PrintJobs on this printer

Model | Example Value

```
    "datetime_started": "2025-10-17T02:25:36.065Z",
    "datetime_finished": "2025-10-17T02:25:36.065Z",
    "datetime_cleaned": "2025-10-17T02:25:36.065Z",
    "result": "Finished",
    "source": "string",
    "reprint_original_uuid": "string",
    "name": "string",
    "uuid": "string"
  }
]
```

Response Content Type application/json ⌄

Parameters

Parameter	Value	Description	Parameter Type	Data Type
offset		Allow an offset parameter to specify the start in the history to get jobs from. Defaults to 0	query	double
count		Allow a count parameter to specify the number of jobs to get from the log. Defaults to 50	query	double

Try it out!

GET   /history/print_jobs/{uuid}

Response Class (Status 200)

PrintJob with the given UUID

Model | Example Value

```
{
  "time_elapsed": 0,
  "time_estimated": 0,
  "time_total": 0,
  "datetime_started": "2025-10-17T02:25:36.069Z",
  "datetime_finished": "2025-10-17T02:25:36.069Z",
  "datetime_cleaned": "2025-10-17T02:25:36.069Z",
  "result": "Finished",
  "source": "string",
  "reprint_original_uuid": "string",
```

Response Content Type application/json ▼

Parameters

Parameter	Value	Description	Parameter Type	Data Type
uuid	(required)	**UUID of the job to get**	path	string

Try it out!

GET   /history/events

Response Class (Status 200)

All events that happened on this printer

Model | Example Value

```
[
  {
    "time": "2025-10-17T02:25:36.072Z",
    "type_id": 0,
    "message": "string",
    "parameters": [
      "string"
    ]
  }
]
```

Response Content Type [application/json ▾]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
offset	[ ]	Allow an offset parameter to specify the start in the history to get events from. Defaults to 0	query	double
count	[ ]	Allow a count parameter to specify the number of events to get from the log. Defaults to 50	query	double
type_id	[ ]	Allows the user to filter events by type	query	double

[Try it out!]

POST   /history/events

Parameters

Parameter	Value	Description	Parameter Type	Data Type
type_id	(required)		formData	double
parameters	Provide multiple values in new lines (at least one required).		formData	Array[string]

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Event logged		
400	Bad request, some input value was not excepted.		

Try it out!

Camera : Camera image and video

GET   /camera

Implementation Notes
Returns camera object

Response Class (Status 200)
Camera object

Model | Example Value

```
{
  "feed": "string"
}
```

Response Content Type application/json ⌄

Try it out!

GET   /camera/feed

Implementation Notes
Get a link to the camera feed, this returns an url to a camera stream

Response Class (Status 200)
string

Response Content Type application/json ⌄

Try it out!

GET   /camera/{index}/stream

Implementation Notes

Get a redirection to the camera live feed.

Parameters

Parameter	Value	Description	Parameter Type	Data Type
index	(required)	**index of the camera to get the feed from.**	path	double

Response Messages

HTTP Status Code	Reason	Response Model	Headers
302	Redirection to the camera feed.		
404	Camera with this index is not available in the system.		

Try it out!

GET   /camera/{index}/snapshot

Implementation Notes

Get a redirection to the camera snapshot.

Parameters

Parameter	Value	Description	Parameter Type	Data Type
index	(required)	**index of the camera to get the snapshot from.**	path	double

Response Messages

HTTP Status Code	Reason	Response Model	Headers
302	Redirection to the camera snapshot.		
404	Camera with this index is not available in the system.		

Try it out!

AirManager : **Air-manager peripheral**

GET   /airmanager

Implementation Notes

Returns Air-manager details

Response Class (Status 200)

Air-manager details

Model | Example Value

```
{
  "firmware_version": "string",
  "filter_age": 0,
  "filter_max_age": 0,
  "filter_status": "unknown",
  "status": "error",
  "fan_speed": 0
}
```

Response Content Type application/json ˅

Try it out!

ambient_temperature

GET   /ambient_temperature

Implementation Notes

Returns the ambient temperature

Response Class (Status 200)

Ambient temperature

Model | Example Value

```
{
  "current": 0
}
```

Response Content Type application/json ⌄

Try it out!

[BASE URL: /api/v1 , API VERSION: 1.0.0]