

Local API access

Applicable variants

Brand	Variant
Bosch	Connect-Key K 40 RF
Buderus	MX400
Generic product naming	K 40 RF

This document describes local network discovery, access-token management, signal retrieval, endpoint usage, and troubleshooting for the local API.

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1 Purpose and access model

The Gateway provides an HTTPS-based REST interface for local API access. A user device on the same local network can read heating-system information directly from the Gateway.

API access is read-only. Available data depends on the actual heating-system configuration and may include temperatures, operating status, compressor information, pump states, setpoints, statistics, and diagnostic status information.

Area	Gateway modality
Access scope	Local network only. The user device must be on the same network as the Gateway.
Authentication type	Bearer token
Authentication port	9442
Data API port	9443
Proximity check	Press both Gateway buttons simultaneously for less than 3 seconds. The LED lights blue for approximately 3 seconds. Complete the token request within 5 minutes.
Token scope	open_api.read
Data access	Read-only signal access via HTTPS REST endpoints.

2 Prerequisites

2.1 Hardware and network

- A paired and powered Gateway.
- The Gateway is connected to the local network. A green LED indicates successful pairing.
- A computer, tablet, or smartphone connected to the same local network as the Gateway.

2.2 Gateway credentials

The Gateway sticker contains the credentials required for token creation. The login is used as the username. The password is printed with dashes, but the API request must use the password without dashes.

Field on sticker	How to use it	Example
Login	Use as username.	101880982
Password	Remove all dashes before using it in API requests.	Sticker: FLu9-m4yT-TRq7-HCdj API: FLu9m4yTTRq7HCdj

Important: Enter the password without dashes in API calls. The values shown in this document are examples only.

2.3 Software

- A REST client such as curl or Postman.
- For curl, use the -k flag because the Gateway uses a self-signed HTTPS certificate.
- In Postman, disable SSL certificate verification under Settings > General.

3 Discover the Gateway on the local network

The Gateway IP address can be found in several ways:

- Via the router administration interface under connected devices.
- Via mDNS discovery.
- Directly on the Gateway module / HMI under the network information screen.
- In the document delivered with the Gateway package.

3.1 mDNS service type

The Gateway advertises local API access using:

```
_hvac-open-api._tcp.local.
```

3.2 Discover the service on macOS or Linux

```
dns-sd -B _hvac-open-api._tcp local.  
# Stop the search with Ctrl+C after the service appears.
```

3.3 Resolve the IP address

```
dns-sd -L "<service-name>" _hvac-open-api._tcp local.
```

Only services advertised under `_hvac-open-api._tcp` are relevant for local API data access.

4 Network ports and protocol

The Gateway uses HTTPS with a self-signed certificate. Authentication and data retrieval are separated by port.

Service	Port	Protocol	Purpose
Authentication	9442	HTTPS	Request, list, and revoke access tokens.
Data API	9443	HTTPS	Read signals and system information.

5 Authentication and token handling

To use the local API, first request an access token from the Gateway authentication endpoint. A physical proximity check is required before the token request.

5.1 Perform the proximity check

Action	Result	Time window
Press both Gateway buttons simultaneously for less than 3 seconds.	The LED lights blue for approximately 3 seconds.	Complete the token request within 5 minutes.

5.2 Send the token request

Parameter	Gateway value
Method	POST
URL	https://<ip>:9442/auth/token
Header	Content-Type: application/x-www-form-urlencoded
grant_type	password
username	<login from sticker>
password	<password from sticker, without dashes>
client_name	User-selectable client identifier. Example: eu-dataact.

```
curl -k -X POST https://192.168.0.51:9442/auth/token \
-H 'Content-Type: application/x-www-form-urlencoded' \
--data-urlencode 'grant_type=password' \
--data-urlencode 'username=101880982' \
--data-urlencode 'password=FLu9m4yTTRq7HCdj' \
--data-urlencode 'client_name=eu-dataact'
```

Username and password shown in this document are example values only. Use the credentials printed on the Gateway sticker.

5.3 Store the received token securely

```
{
  "access_token": "eyJhbG...",
  "token_type": "Bearer",
  "scope": "open_api.read"
}
```

The access token does not expire and can be used for the lifetime of the Gateway. Store it securely and treat it like a credential.

5.4 Possible token request errors

HTTP status	Error	Cause / recommended action
412	physical_proximity_unproven	The buttons were not pressed, or the 5-minute window expired.
400	invalid_grant	Wrong username or password. Check that the password is entered without dashes.
401	Unauthorized	Wrong port or malformed request.
415	Wrong Content-Type	Use Content-Type: application/x-www-form-urlencoded.
507	Token database full	Maximum number of tokens has been reached. List and revoke unused tokens if appropriate.

5.5 List active tokens

```
curl -k https://192.168.0.51:9442/auth/token -H 'Authorization: Bearer <token>'
```

5.6 Revoke a token

```
curl -k -X POST https://192.168.0.51:9442/auth/revoke \  
-H 'Authorization: Bearer <token>' \  
-H 'Content-Type: application/x-www-form-urlencoded' \  
--data-urlencode 'token_id=1' \  
--data-urlencode 'usage_type=private'
```

6 Accessing data through the local API

After authentication, use data API port 9443 and include the Bearer token in the Authorization header.

All signal retrieval endpoints described in this chapter use the HTTP GET method. Do not use POST for signal retrieval.

Item	Gateway value
Base URL	https://<ip>:9443
Authorization header	Authorization: Bearer <token>
Access mode	Read-only

6.1 Customer-relevant signals in the YAML file

Use the signals described in the YAML file on the developer portal: <https://developer.apps-tt.com/>

All signals classified as relevant for customers are described there.

6.2 Further signals

To retrieve further signals, use the request /signals.

```
curl -k https://192.168.0.51:9443/signals -H 'Authorization: Bearer <token>'
```

```
curl -k 'https://192.168.0.51:9443/signals?query=all' -H 'Authorization: Bearer <token>'
```

Signal response structure

Field	Type	Meaning
id	string	Signal identifier, for example /signals/Sys.OutdTemp_X.
type	string	Data type such as floatValue, integerValue, or stringValue.
value	varies	Current value of the signal.
unitOfMeasure	string	Unit, for example C or %.
writable	integer	0 means read-only.
state	array	Optional sensor fault states.

6.3 Query a single signal

```
curl -k https://192.168.0.51:9443/signals/Sys.OutdTemp_X -H 'Authorization: Bearer <token>'
```

6.4 Common signal examples

Category	Signal	Description
Temperatures	Sys.OutdTemp_X	Outdoor temperature
Temperatures	Src.IntFlowTemp_X	Flow temperature
Temperatures	CUHP.HP1.ReturnTemp_X	Return temperature
Temperatures	IntDHW.CylTemp_X	Domestic hot water cylinder temperature
Operating status	CUHP.HMI.HeatingActive	Heating mode active
Operating status	CUHP.HMI.CompressorActive	Compressor running
Operating status	CUHP.CoolingActive	Cooling mode active
Operating status	IntDHW.HeatUpActive	Domestic hot water heating active
Compressor details	CUHP.HP1.CompressorSpeedActual	Current compressor speed
Compressor details	CUHP.HP1.CompressorPower	Current compressor power
Statistics	CUHP.HP1.Stats.CompressorCH	Compressor hours for central heating
Statistics	CUHP.HP1.Stats.CompressorDHW	Compressor hours for hot water
Setpoints and limits	IntDHW.ReqDHWTemp	Requested domestic hot water temperature
Setpoints and limits	HCn.FlowTempSetp	Heating circuit flow temperature setpoint
Relay and pump status	CUHP.HC1PumpRelay	Heating circuit 1 pump relay
Relay and pump status	CUHP.HP1.CH PumpSpeed	Central heating pump speed
Relay and pump status	Src.SystemPumpVolumeFlow	System pump volume flow

7 Endpoint reference

Endpoint	Method	Port	Purpose
/auth/token	POST	9442	Request a new access token.
/auth/token	GET	9442	List all active tokens.
/auth/revoke	POST	9442	Revoke a token.
/signals	GET	9443	List all available signal IDs.
/signals?query=all	GET	9443	Get all signals with values.
/signals/<name>	GET	9443	Get a single signal value.
/system/info	GET	9443	System information, if available.

8 Postman setup

Configure the Postman environment before sending the first request.

Variable	Gateway value / guidance
gateway_ip	IP address of the Gateway.
auth_port	9442
api_port	9443
auth_type	Bearer
username	Login from the Gateway sticker.
password	Password from the Gateway sticker, without dashes.
client_name	User-selectable identifier.
access_token	Leave empty before requesting the token.

- Disable SSL certificate verification under Settings > General.
- Perform the proximity check.
- Run the token request within 5 minutes.
- Use the saved Bearer token for data requests on port 9443.

9 Troubleshooting

Problem	Recommended action
Connection refused	Check the Gateway IP and ensure the user device is on the same network.
SSL certificate error	Use curl -k or disable SSL verification in Postman.
401 Unauthorized	Check the Bearer header and port.
412 physical_proximity_unproven	Repeat the proximity check and retry within 5 minutes.
400 invalid_grant	Check username and the password without dashes.
415 Wrong Content-Type	Use application/x-www-form-urlencoded.
507 Token database full	List tokens and revoke unused tokens if appropriate.
404 Not Found	Use GET /signals to list available signals.
mDNS not finding Gateway	Search for _hvac-open-api._tcp.local. and confirm network connectivity.

10 Quick-start checklist

- Power and connect the Gateway.
- Find the Gateway IP address.
- Read Login and Password from the Gateway sticker.
- Remove dashes from the password.
- Press both buttons for less than 3 seconds.
- Send the token request within 5 minutes.
- Store the Bearer token securely.
- Use the YAML file on the developer portal for customer-relevant signals.
- Use GET /signals for further signals.



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