

Developers Manual API Exchange - HL7

This service is developed to obtain information stored in the Bionova Cloud Software. Results of readings of Biological indicators and Protein Indicators, washing and sterilization chemicals can be consulted.

* It is recommended to use the Postman program or similar tools to perform the Requests.

1. Get Access Token.

You must first generate a token to be able to make calls to the other Apis.

To obtain the access token, you must enter the username, password and domain of the company that we want to consult.

- 1.1 Select POST method.
- 1.2 Enter the request URL:
[<https://bionovacloudexchange.azurewebsites.net/api/login/login>].
- 1.3 In the Authorization tab, select the type: Inherit auth from parent.
- 1.4 In the Body tab, select the raw option, and then the JSON format. Below you must enter your Email, Password and Domain in JSON format:

```
{  
  "Email": "xxxxxxx@xxxx.xxx",  
  "Password": "xxxxxxx",  
  "DomainDist": "https://bionovacloudexchange.azurewebsites.net"  
}
```

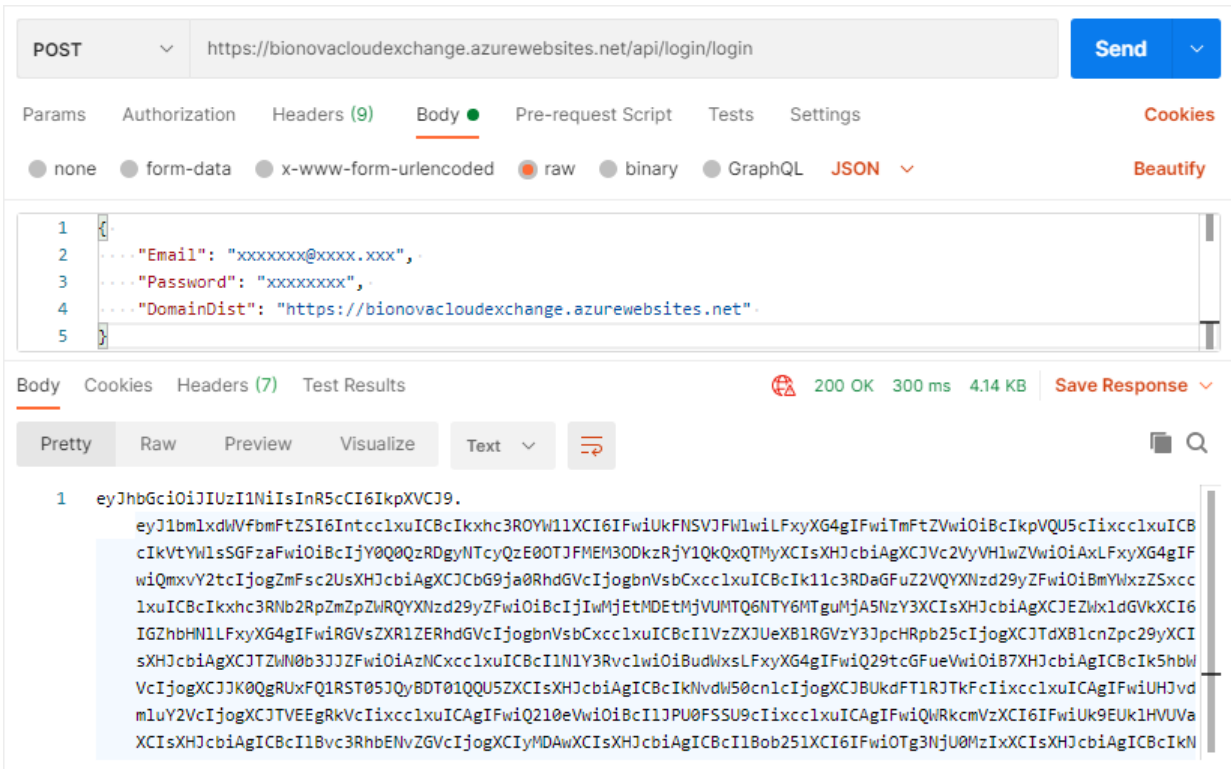
Parameter reference:

"Email": It refers to the email of the user with which you want to generate the token.

"Password": It refers to the password corresponding to the email entered.

"DomainDist": It refers to the domain of the web page where you are going to request the results.

- 1.5 Click on Send and below you will get the answer with the Access Token.



2. Making calls to the API

Once you get the access token, you can see results on the following endpoints:

Biological indicators of sterilization:

[https://bionovacloudexchange.azurewebsites.net/api/Reading/GetBiSterilizationResults]

Biological indicators of disinfection:

[https://bionovacloudexchange.azurewebsites.net/api/Reading/GetBiDisinfectionResults]

Protein indicators:

[https://bionovacloudexchange.azurewebsites.net/api/Reading/GetProResults]

Washing chemicals:

[https://bionovacloudexchange.azurewebsites.net/api/Reading/GetWasherResults]

Sterilization chemicals:

]

- ## 2.3

GET

https://localhost:44373/api/Reading/GetBiSterilizationResults

Send

Params

Authorization

Headers (9)

Body

Pre-request Script

Tests

Settings

Cookies

Type

Bearer Token

Token

```
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1bmlxdWVpbmFTZSI6IntccxlulCBclxxhc3R0YXN0IiwiaWF0IjEyOQ0zZDg5NTcyQzE0OTJFMEM3ODkzRjY1QkQxQTMyXClzXHJcbiAgXCJvc2YyVHlwZVwiOiAxLmFyXG4glFwiQmxvY2tcljogZmFsc2UsXHJcbiAgXCJCbG9ja0RhdGVcljogbnVsbCxcxlulCBcl11c3RDaG9uZDZVQYXNzd29yZFwiOiBmYXxzZSxcxlulCBclxxhc3Rnb2ZpZmZlZWR0YXNzd29yZFwiOiBcljIwMjEtMDEtMjVUMTQ6NTY6MTgtMjA1NSZyZ3R0YXN0IiwiaWF0IjE5OTY0MDkzZDg5NTcyQzE0OTJFMEM3ODkzRjY1QkQxQTMyXClzXHJcbiAgXCJvc2YyVHlwZVwiOiAxLmFyXG4glFwiQmxvY2tcljogZmFsc2UsXHJcbiAgXCJCbG9ja0RhdGVcljogbnVsbCxcxlulCBcl1VzZXJ1eXBIRGVzY3JpcHR0b25
```

- ## 2.4

 $\{$

Parameter reference:

"From": It refers to the date and time from where the results will be searched.

Format: “yyyy-MM-dd HH:mm:ss”.

"To": Refers to the date and time to which the results will be searched.

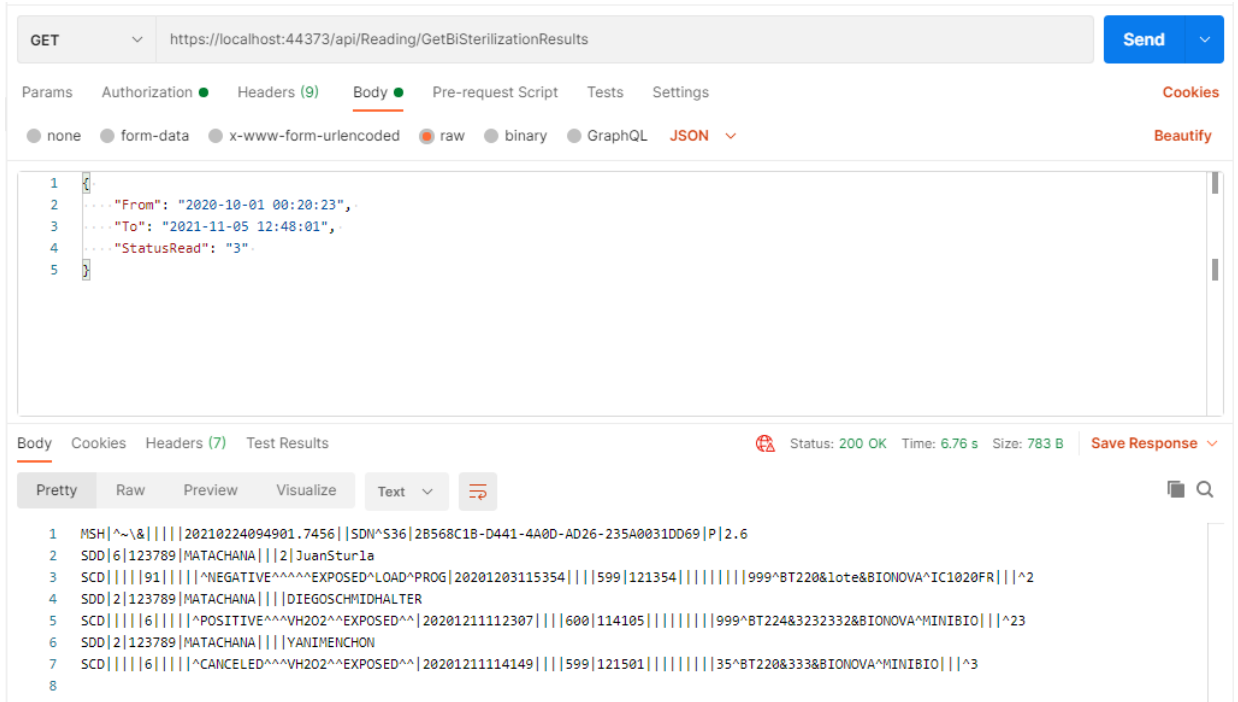
Format: “yyyy-MM-dd HH:mm:ss”.

"StatusRead": Determines the type of result to query.

If you enter 3, it shows the FINISHED results.

If you enter 2, it shows SAVED results.

2.5 Click on Send and you will get the results.



The screenshot shows a REST client interface with a GET request to `https://localhost:44373/api/Reading/GetBiSterilizationResults`. The request is sent, and the response is displayed in the "Body" tab. The response is a JSON object with the following structure:

```

1 {
2   ... "From": "2020-10-01 00:20:23",
3   ... "To": "2021-11-05 12:48:01",
4   ... "StatusRead": "3"
5 }

```

The response status is 200 OK, with a time of 6.76 s and a size of 783 B. The response is saved.

The "Body" tab shows the response in "Pretty" format, displaying a list of sterilization results for various equipment and materials.

```

1 MSH|^~\&|||20210224094901.7456||SDN^S36|2B568C1B-D441-4A0D-AD26-235A0031DD69|P|2.6
2 SDD|6|123789|MATACHANA|||2|JuanStur1a
3 SCD|||91|||NEGATIVE^^^^EXPOSED^LOAD^PROG|20201203115354|||599|121354|||999^BT220&1ote&BIONOVA^IC1020FR||^2
4 SDD|2|123789|MATACHANA|||DIEGOSCHMIDHALTER
5 SCD|||6|||POSITIVE^^^VH202^^EXPOSED^^|20201211112307|||600|114105|||999^BT224&3232&BIONOVA^MINIBIO||^23
6 SDD|2|123789|MATACHANA|||YANIMENCHON
7 SCD|||6|||CANCELED^^^VH202^^EXPOSED^^|20201211114149|||599|121501|||35^BT220&333&BIONOVA^MINIBIO||^3
8

```

HL7 communication Protocol

Version: v2.6.

Type: SDN/ACK - Notification of Anti-Microbial Device Data (Event S36).

Segments:

- SDD - Sterilization Device Data Segment.
- SCD - Anti-Microbial Cycle Data Segment.

Reference: <http://www.hl7.eu/HL7v2x/v26/std26/ch17.html#Heading160>

Results structure:

Biological indicators of sterilization:

Segment	Property	DataType	Values	Description
SDD-1.1	Position Number	(integer)	1 to quantity of incubation wells, e.g. 1 to 12 in IC1020FR model.	Number of the well of the incubator where the BI is being incubated and read.
SDD-2.1	Sterilizer Serial	(string)		Serial number of the sterilizer used to process the BI.
SDD-3	Sterilizer Name	(string)		Description of the sterilizer used to process the BI.
SDD-6	D Value	(real)	e.g.: 0.2 = 2 Minutes.	Provides information about the resistance of the BI batch
SDD-7	UserName, UserLastName.	(string)		Name of the user that was logged in during the incubation.

SCD-5	Ticket Number	(integer)	1 - 9999999	Indicates the ticket number emitted by the incubator.
SCD-10.2	Result	(string)	POSITIVE NEGATIVE CANCELED	Actual result given by the incubator.
SCD-10.5	Process	(string)	NONE STEAM_121 STEAM_132 STEAM_134 STEAM_135 EO FORM VH2O2	Conditions for calculation of the D-Value.
SCD-10.7	ConditionSCIB	(string)	POSITIVE EXPOSED	Condition of the incubated BI: Non-exposed or Exposed to the sterilization cycle.
SCD-10.8	Load Number	(string)		Load number of the day.
SCD-10.9	Program Number	(string)		Program of the sterilizer used for that cycle.
SCD-11	Started Time	(DateTime)	yyyyMMddHHmms s	Gives the exact date and time of the beginning of the incubation.
SCD-15.1	Average Temperature	(float)		Average temperature during the incubation period of the BI.
SCD-16	ResultDate	(Time)	HHmmss	Gives the exact time of the finalization of the incubation.
SCD-25.1	Incubator Serial Number	(string)	MIN: 1 - MAX: 999	Serial number of the incubator.

SCD-25.2.1	Product Name	(string)		Product name of the BI.
SCD-25.2.2	Product Lot	(string)		Batch number of the BI.
SCD-25.2.3	Product Brand	(string)		Brand of the BI.
SCD-25.3	Incubator Name	(string)		Incubator model name
SCD-28.2	Cycle	(integer)		Cycle number, provided in the sterilizer screen and/or ticket.

Biological indicators of disinfection:

Segment	Property	DataType	Values	Description
SDD-1.1	Position Number	(integer)	1 to quantity of incubation wells, e.g. 1 to 12 in IC1020FR model.	Number of the well of the incubator where the BI is being incubated and read.
SDD-2.1	Disinfector Serial	(string)		Serial number of the disinfector used to process the BI.
SDD-3	Disinfector Name	(string)		Description of the disinfector used to process the BI.
SDD-6	Peroxide Concentration	(integer)		It is the concentration of hydrogen peroxide that was used to disinfect the environment.

SDD-7	UserName, UserLastName.	(string)		Name of the user that was logged in during the incubation.
SCD-5	Ticket Number	(integer)	1 - 9999999	Indicates the ticket number emitted by the incubator.
SCD-10.2	Result	(string)	POSITIVE NEGATIVE CANCELED	Actual result given by the incubator.
SCD-10.5	Process	(string)	NONE STEAM_121 STEAM_132 STEAM_134 STEAM_135 EO FORM VH2O2	Conditions for calculation of the D-Value.
SCD-10.7	ConditionSCIB	(string)	POSITIVE EXPOSED	Condition of the incubated BI: Non-exposed or Exposed to the sterilization cycle.
SCD-10.8	Room Id	(string)		It is the identification of the environment that was disinfected.
SCD-10.9	Room Volume	(integer)		It is the volume of the environment that was disinfected.
SCD-11	Started Time	(DateTime)	yyyyMMddHHmmss	Gives the exact date and time of the beginning of the incubation.

SCD-15.1	Average Temperature	(float)		Average temperature during the incubation period of the BI.
SCD-16	ResultDate	(Time)	HHmmss	Gives the exact time of the finalization of the incubation.
SCD-25.1	Incubator Serial Number	(string)	MIN: 1 - MAX: 999	Serial number of the incubator.
SCD-25.2.1	Product Name	(string)		Product name of the BI.
SCD-25.2.2	Product Lot	(string)		Batch number of the BI.
SCD-25.2.3	Product Brand	(string)		Brand of the BI.
SCD-25.3	Incubator Name	(string)		Incubator model name.

Protein indicators:

Segment	Property	DataType	Values	Description
SDD-1.1	Position Number	(integer)	1 to quantity of incubation wells, e.g. 1 to 3 in MINIPRO model.	Shows the number position on the incubator in which the protein incubation process was performed.
SDD-2.1	Washer Serial	(string)		Serial number of the washer
SDD-3	Washer Name	(string)		Washer's name
SDD-6	Protein	(string)	>10 1,00 ~ 9,90	Quantitative Protein test

			<1 0	result according to the incubator's information. This result is given in micrograms (µg) of protein.
SDD-7	UserName, UserLastName	(string)		Name of the user that was logged in during the incubation.
SCD-5	Ticket Number	(integer)	1 - 9999999	Indicates the ticket number emitted by the incubator.
SCD-10.2	Result	(string)	CANCELLED NEGATIVE POSITIVE NO_RESULT NEGATIVE_WITHOUT_PENCIL PEN_NOT_VALID PEN PULLED OUT	Protein test result according to the incubator's information.
SCD-10.8	Surface	(string)		Refers to the surface that was swabbed.
SCD-10.9	Program Number	(string)		Program used for the washing cycle.
SCD-11	Started Time	(DateTime)	yyyyMMddHHmmss	Gives the exact date and time of the beginning of the incubation.
SCD-15.1	Average Temperature	(float)		Average temperature during the incubation period of the Protein Pen.
SCD-16	ResultDate	(time)	HHmmss	Gives the

				exact time of the finalization of the incubation.
SCD-25.1	Incubator Serial Number	(string)	Serial number of the incubator	Serial number of the incubator.
SCD-25.2.1	Product Name	(string)		Product name of the Protein Pen
SCD-25.2.2	Lote Product	(string)		Batch number of the Protein Pen.
SCD-25.2.3	Product Brand	(string)		Brand of the Protein Pen
SCD-25.3	Incubator Name	(string)		Incubator model name.
SCD-28.2	Cycle	(integer)		Cycle number, provided in the washer screen and/or ticket.

Washing chemical indicators:

Segment	Property	DataType	Values	Description
SDD-1.1	Manufacture Indicator	(float)		Manufacturer of the indicator.
SDD-2.1	Serial Washer	(string)		Serial number of the Cleaning machine used in the process.
SDD-3	Brand Washer	(string)		Brand of the Cleaning machine used in the process.
SDD-7	UserName, UserLastName	(string)		Name of the user that was logged in when the

				indicator was scanned.
SCD-1	Manufacture Date	(DateTime)	yyyyMMddHHmms	Manufacture date of the indicator.
SCD-7.1	WashingTime	(integer)		Time that the indicator was exposed to the cleaning process.
SCD-10.2	Result	(string)	ACCEPTED REJECTED UNSAFE SAFE	Analysis results according to the reader's information.
SCD-10.5	Detergent Type	(string)	Enzymatic Alkaline Non-Ionic	The type of detergent utilized at the cleaning process.
SCD-10.7	Detergent Concentration	(integer)		Percentage of concentration of the detergent utilized at the cleaning processes.
SCD-10.8	Location	(string)		Location of the chemical indicator inside the cleaning machine.
SCD-10.9	Program	(string)		Number of the program that the machine uses for that cycle.
SCD-11	Creation Test	(DateTime)	yyyyMMddHHmms	Give the exact date and time this result was generated.
SCD-15.1	Temperature	(string)		Temperature of the cleaning cycle.
SCD-16	ExpirationDate	(DateTime)	yyyyMMddHHmms	Expiration date of the indicator.
SCD-25.1	Serial Number Scanner	(string)		Serial Number of the Trazanto

				reader used.
SCD-25.2.1	Product name	(string)		Product name of the indicator.
SCD-25.2.2	Lot Product	(string)		Batch number of the Chemical Indicator.
SCD-25.2.3	Brand	(string)		Brand of the Chemical Indicator.
SCD-28.2	Cycle	(integer)		Cycle number of the cleaning process.
SCD-30.2.1	Water Pressure	(float)		Pressure of the water utilized at the cleaning cycle.
SCD-30.2.2	WaterHardness	(float)		Parameter that defines the quality of the water utilized at the cleaning cycle.

Sterilization chemical indicators:

Segment	Property	DataType	Values	Description
SDD-1.1	Manufacture Indicator	(float)		Manufacturer of the indicator.
SDD-2.1	Serial Sterilizer	(string)		Serial number of the sterilizer used to process the Chemical Indicator
SDD-3	Brand Sterilizer	(string)		Brand of the sterilizer used to process the Chemical Indicator.

SDD-7	UserName, UserLastName	(string)		Name of the user that was logged in when the indicator was scanned.
SCD-1	Manufacture Date	(DateTime)	yyyyMMddHHmmss	Manufacture date of the indicator.
SCD-7.1	Exposure Time	(float)		Time that the indicator was exposed to the sterilization process.
SCD-10.2	Result	(string)	ACCEPTED REJECTED UNSAFE SAFE	Analysis results according to the reader's information.
SCD-10.5	Concentration	(integer)		Percentage of concentration of the sterilization agent used in the sterilization processes.
SCD-10.7	Relative Dampness	(float)		Relative humidity condition, given in percentage, at the moment the sterilization process was made.
SCD-10.8	Package Number	(integer)		The number of the packet which contained the chemical indicator during the sterilization process.
SCD-10.9	Program	(string)		Number of the program that the sterilizer uses for that cycle.
SCD-11	Creation Test	(DateTime)	yyyyMMddHHmm	Give the exact

			ss	date and time this result was generated.
SCD-15.1	Temperature	(string)		Temperature of the sterilization cycle.
SCD-16	ExpirationDate	(DateTime)	yyyyMMddHHmmss	Expiration date of the indicator.
SCD-25.1	Serial Number Scanner	(string)		Serial Number of the Trazanto reader used.
SCD-25.2.1	Name Product	(string)		Product name of the indicator.
SCD-25.2.2	Lote Product	(string)		Batch number of the Chemical Indicator.
SCD-25.2.3	Brand	(string)		Brand of the Chemical Indicator.
SCD-28.2	Cycle	(integer)		Cycle number of the sterilization process.