

Properties

Quality Control and beyond

During ingest (spaces.awi.de/x/VSIUEg) several elaborated plausibility and quality checks (autoQC, see spaces.awi.de/x/22WjEw) are applied to the incoming data. This is done for various purposes: These tests shall ensure that each observation is properly flagged when it enters the database. In our opinion estimates about quality, plausibility, and integrity of the data play a significant role in the metadata. Estimates on data quality help the user to evaluate her/his input data as well as possible data products.

Some tests of autoQC are more or less self-propelling, such as device or timestamp identification, since it is data-inherent information which is used by these tests. But in order to offer near-real time quality controlled data some **assistance by the sensor's editor** is required.

registry.awi.de offers a wide range of properties. In parts, they can be set per whole item as well as per parameter. Thus, if for example a lower and upper threshold like operation range is available for a whole device, it should be set per item. If the property is valid for a specific parameter exclusively, set the measurement property per parameter.

Available properties

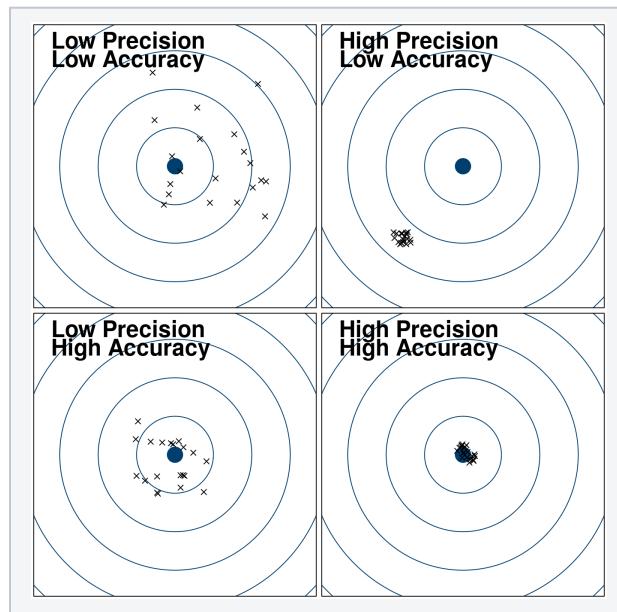
systemName	id	description	uuid
Gradient_Threshold	402	a threshold supplied to the Gradient Test as part of the autoQC routine at AWI	bf962581-627e-48b5-a85d-d03a3aedddc5
Manufacturer_Range	208	the manufacturer's suggested/proclaimed minimum and maximum value to be measured, below/above accuracy and precision is not guaranteed	29943ecd-2d9a-4db5-9202-949360ca0fbd
Measurement_Accuracy	310	gives the accuracy of the sensor's measurements in units	c25a833f-d46b-4a4f-a1f9-3b7ce3acd418
Measurement_Depth	20	The depth of a measurement	21f470c9-0d58-4822-ae76-9021e6220883
Measurement_Drift	185	describes the stability of a sensor's measurements in units over time	84e8d781-cb9c-463c-abd1-35517beb3f52
Measurement_Frequency	19	is the declared repetition of measurements in units	6dab7c89-e745-4394-9d9a-13f1740b0e14
Measurement_Precision	18	states the expected precision of the sensor's measurements in units	412b712a-1ace-47b3-9ab2-51df20d837f0
Measurement_Resolution	178	The resolution of a measurement	7ba1a063-b831-4e0d-b766-eeb32d1dcb84
Operation_Range	32	Operation Range	fc5f18e6-0ed4-429a-b21c-022f29ded578
Operation_Temperature	21	gives the minimum and maximum tolerable environment temperature of the sensor to be operated	271d0474-9a2b-4228-90b4-d83f45b58b85
Spike_Threshold	403	a threshold supplied to the Spike Test as part of the autoQC routine at AWI	a2f788a8-3b56-4067-8755-c1ddc58471d

Most of the tests in autoQC are derived from or inspired by Wong et al. (2021) and its implementation in O2A is described in Silva et al. (2020) and Silva et al. (2019). Some details can be found at spaces.awi.de/x/22WjEw as well.

This feature is implemented to serve in a very generic way. It might be that not all properties (and the resulting tests) apply for your specific parameter or item.

Beyond the above mentioned tests as part of autoQC during ingest (spaces.awi.de/x/VSIUEg) some more tests are applied:

- consecutive date test
- duplicate date test
- empty file test



Reminder: precision vs. accuracy

Parameter properties

+ Add

Show 25 entries

Search:

ID	Name	Lower Bound	Upper Bound	Type	Units	Tools
110180	Gradient threshold	0	10	Gradient Threshold	FTU	 
110178	Local range	0	100	Operation Range	FTU	 
110177	Manufacturer range	0	2500	Manufacturer Range	FTU	 
110179	Spike threshold	5	5	Spike Threshold	FTU	 

Showing 1 to 4 of 4 entries

Previous 1 Next

Cancel

example of fully set properties of Turbidity Sensor 12912 Seapoint at Svalbard Underwater Node 2

Setting Properties

Adding new properties works literally identical for both per parameter and per item.

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Optode

Overview

Contacts

Actions

Parameters

Resources

Properties

Local Frame

Subdevices

Images

Ingest

Current Version

+ Add

Show 25 entries

Search:

ID	Short Name	Name	Type	Unit	Tools
615	oxygen	Oxygen	oxygen	mg/l	 
616	saturation	Saturation	saturation	%	 

Showing 1 to 2 of 2 entries

Previous 1 Next

Close

At 'Parameters' under 'Tools' the properties can be displayed

Parameter properties

+ Add

There are no known properties for this parameter.

and if missing, they can be added.

i t e m	Ferrybox Overview Contacts Actions Parameters Resources Properties Local Frame Subdevices Images Ingest Current Version + Reassign 🔗 Edit Sensor (2021). Metadata for small scale facility Ferrybox at Current Version. https://hdl.handle.net/10013/sensor.i4650529-8447-4270-81d9-6ffc417b2fec State: Construction Public Store ID: 504 Parent: Helgoland Underwater Observatory Device URN: station:heluwobs:fb_awl_730201 Short Name: fb_awl_730201 Long Name: Ferrybox Collections: Description: The 4H FerryBox is an autonomous, low maintenance metrology system which has been developed especially for permanent deployment on ships, metrology platforms and river measurement points. Due to its special architecture, the system is able to link a multitude of sensors and automatic analysis devices and even perform measurements in difficult media (such as sea water or bubbling water etc.). The entire sensor system is an integral part of the anti-fouling concept whereby the maintenance requirement is held to a minimum. Serial: 730201 Manufacturer: 4H-Jena Engineering Model: 4H Ferrybox Type: small scale facility Asset Number: Download sensor metadata as: Sensor ML JSON Close	Ferrybox Overview Contacts Actions Parameters Resources Properties Current Version 🔗 + Add There are no properties for this device.
	At the tab 'Properties' the properties can be displayed	and if missing, they can be added.

- Silva, Brenner, Najmeh Kaffashzadeh, Erik Nixdorf, Sebastian Immoor, Philipp Fischer, Norbert Anselm, Peter Gerchow, Angela Schäfer, and Roland Koppe. 2020. "Automatic Quality Control and Quality Control Schema in the Observation to Archive." EGU2020-15961. Copernicus Meetings. <https://doi.org/https://doi.org/10.5194/egusphere-egu2020-15961>.
- Silva, Brenner, Roland Koppe, Antonie Haas, Christian Schäfer-Neth, Philipp Fischer, Sebastian Immoor, Peter Gerchow, Bernadette Fritzs, and Stephan Frickenhaus. 2019. "Automatic Data Quality Control for Understanding Extreme Climate Event." In *EPIC32nd International REKLIM Conference, Berlin, 2019-09-23-2019-09-26Bremerhaven, Germany, REKLIM - Helmholtz Climate Initiative*. Bremerhaven, Germany: REKLIM - Helmholtz Climate Initiative. <https://www.reklim-conference-2019.de/>.
- Wong, Annie, Robert Keeley, Thierry Carval, and Argo Data Management Team. 2021. "Argo Quality Control Manual for CTD and Trajectory Data," May. <https://archimer.ifremer.fr/doc/00228/33951/>.