

**ARNON SKY SPARE PART
SERVICE SYSTEM &
CONFIGURATION GUIDE**

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Version	Date	Author	Requested by:	Change description
-	22-11-2019	THa/Timo Hanhimäki	Part of digital services	Initial version
A	22-11-2019	THa/Timo Hanhimäki	Part of digital services	Spelling and small modifications.

INTRODUCTION

This guide is intended for customers seeking information on the configuration, and troubleshooting of the Arnon Sky *Spare Parts service*

This document covers the necessary setup of the spare parts service which is integrated part of Arnon Sky platform.

OVERVIEW OF STEPS

Below is an overview of the recommended steps taken when setting up a system:

1. Arnon Sky general information.
2. Spare part service general information.
3. Login to Arnon Sky
4. Create spare part form.
5. Linking data to the spare part items.
6. Modify spare part form.
7. Form indications.
8. System security.
9. Data collection from the site.

In the following chapters, more information is provided about these steps.

PREREQUISITES FOR INSTALLATION AND CONFIGURATION

The following information, equipment, and software are needed to ensure a successful usage and configuration process.

Required hardware

- Any Internet connected computer.
- Internet connection

Required software

- Excel or similar software capable for .xlsx file format handling-
- Internet browser
- Access to Arnon Sky.

Required information

- Basic knowledge about Excel usage
- Project wise spare part items.
- Service business knowledge.
- Few system specific item knowledge.

Arnon Sky

General

Arnon Sky revolutionizes the affordability of cloud based data collection from your Industrial systems. The platform is built from the very core for optimal operation with the massive amount of data that your systems may produce. The Arnon Sky will provide practically unlimited scalability. More information about Arnon Sky, follow the link <https://arnonsky.com>

Spare part service

Spare part service is part of Arnon Sky platform. Service base idea is link real-time data for the site specific spare parts and indicate for the business owner status of the specific item. Please note that service is actively developed and therefore more functionalities will be available for customers on future updates.

Login to Arnon Sky

Arnon Sky is based for the Microsoft Azure cloud platform. The login to the system is done via your company's Microsoft's Azure Active Directory. Therefore you will use your existing company credentials (username & password) to sign in to the service. Additional usernames or passwords are not needed for the service usage.

Start your internet browser and navigate to address:

ADDRESS

[HTTPS://ARNONSKY.COM](https://arnonsky.com)

ARNON SKY Support ▾ Contact sales Launch app

Connecting your Industry

to the cloud and the Industrial Internet of Things

Sign In >

Cloud-based platform for Industrial Internet

Arnon Sky enables the transformation of your Industrial business to digital age.

Industry scale and affordability
Arnon Sky revolutionizes the affordability of cloud based data collection from your Industrial systems. The platform is built from the very core for optimal operation with the massive amount of data that your systems may produce. The Arnon Sky will provide practically unlimited scalability.

10 000+ IIoT devices
1 000 000+ data points per second
Real test scenario with simulated devices.

Data focus
Arnon Sky is focused on providing you the access to data from your industrial processes. We understand that you may have your own tools that processes that need access to the data. That's why we offer a simple API for the access to the data.

- ✓ Live data API
- ✓ Short historical data API
- ✓ Full historical data API (.CSV format)

API features are available as preview.

Edge to cloud
Use our open source IoT device connectivity library or develop you own one. The API is available for your IoT devices to use.

Furthermore, our Cosmos X10 IoT device is available for purchase as preconfigured solution for your business.

The communication to the platform is secured with TLS encryption (HTTPS) and device authentication.

See pricing examples Contact sales

Work account support Responsive web app Developer API Built on Microsoft Azure

Arnon Sky front page (2019).

SIGN IN

Press SIGN IN button or link and fill your username and password.

Typically format is (like your mail username and password):

forename.surname@companyname.com

Create spare part form.

Each company having different kind of spare parts for its units and systems taking care of naming of items. Arnon Sky spare part form is dynamic and in depended from the customer system. Basic idea is make dynamic form which can be easily linked to real-time data.

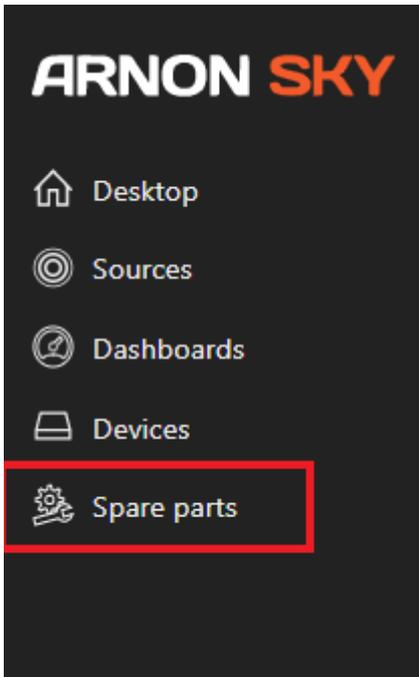
Excel is well known and widely used tool handling of big amount of items. Spare part form support Excel forms to import different kind of spare part tables.

ITEM No.	MODEL TYPE	TOP LEVEL ASSEMBLY PART NUMBER	TOP LEVEL ASSEMBLY DESCRIPTION	SECOND LEVEL ASSEMBLY PART NUMBER	SECOND LEVEL ASSEMBLY DESCRIPTION	THIRD LEVEL ASSEMBLY PART NUMBER	THIRD LEVEL ASSEMBLY DESCRIPTION	ITEM QTY.
1	AC30	X004763	AIR SERVICE UNIT FOR 5514V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.	X001819	3-2-WAY VALVE VHS3D-F, MAN. OPERATED	1
2	AC30	X004763	AIR SERVICE UNIT FOR 5514V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.	X000495	SILENCER AN200, R1/4", -300B(A)	1
3	AC30	X004763	AIR SERVICE UNIT FOR 5514V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.	X001762	F-MOUNTING Y300	1
4	AC30	X004763	AIR SERVICE UNIT FOR 5514V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.	X003907	4K-DISTRIBUTOR	1
5	AC30	X004763	AIR SERVICE UNIT FOR 5514V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.	X003908	PILUG Y514	3
6	AC30	X004763	AIR SERVICE UNIT FOR 5514V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.	X001777	MANOMETER K4, D-10BAR	1
7	AC30	X004763	AIR SERVICE UNIT FOR 5514V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.	X001818	INTERMEDIATE PIECE Y300T	1

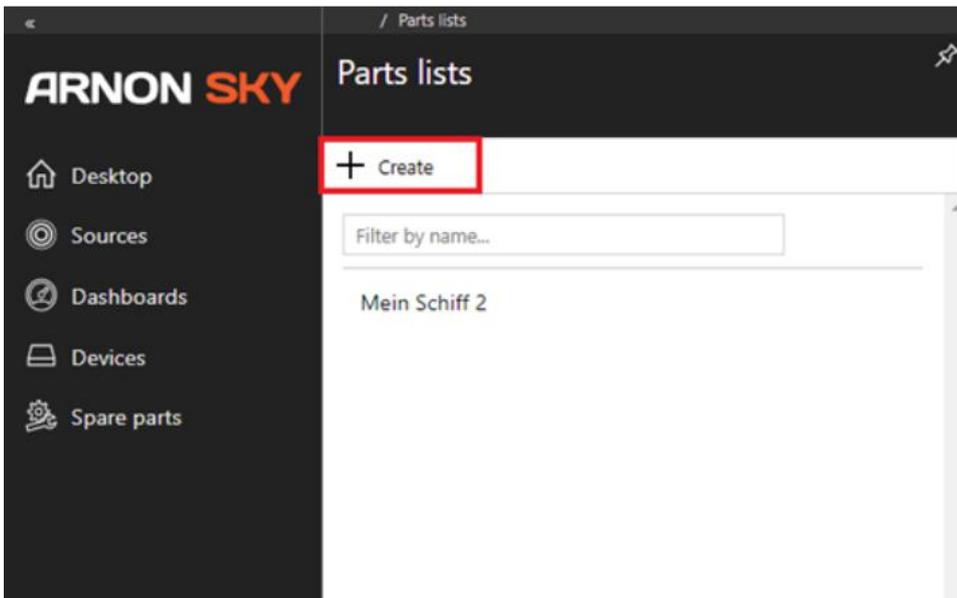
Spare part list example.

Create new spare part list

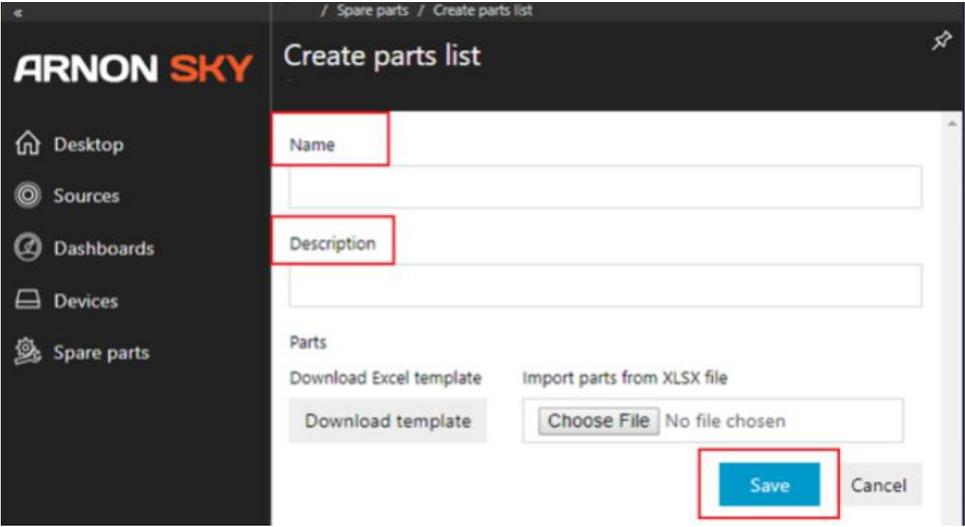
1. Select Spare parts link from the Arnon Sky menu.



2. Press +Create link



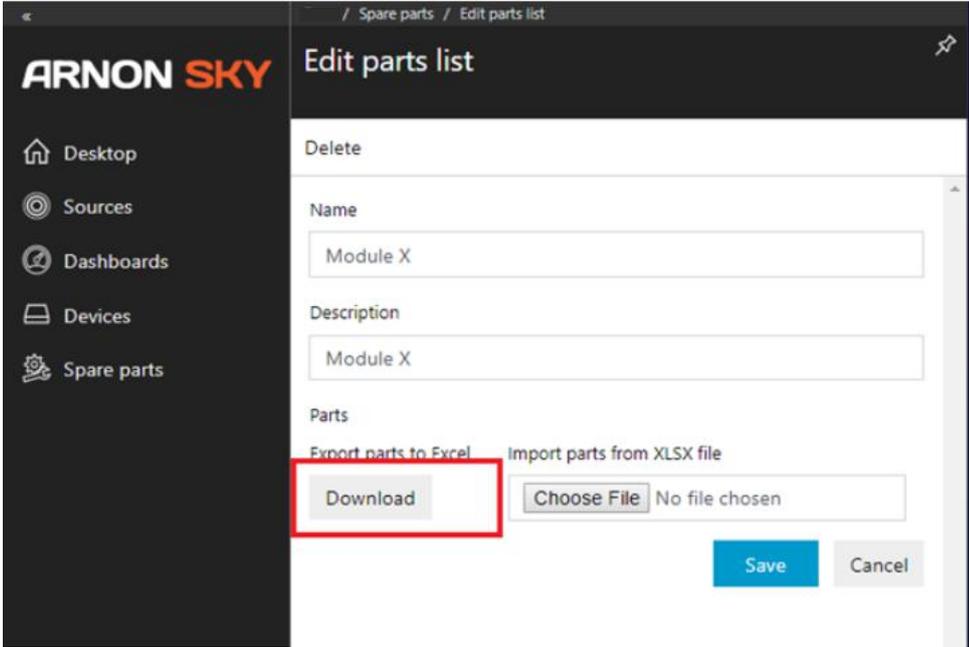
3. Set Name and Description(optional) for the form and press Save button



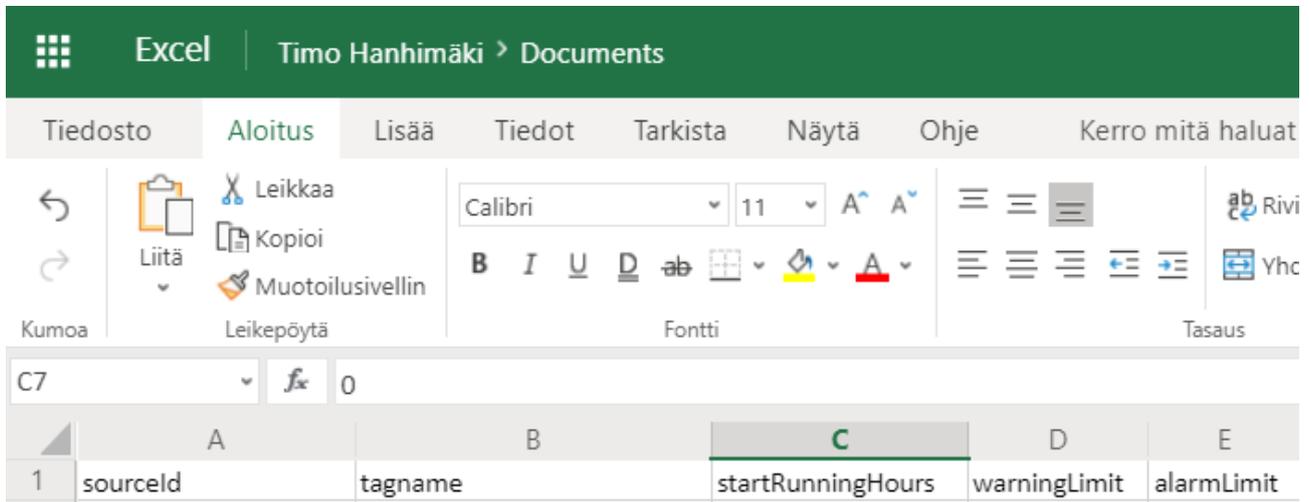
4. Following window will opened press EDIT



5. Press Download



- Download button will create empty Excel file to your download directory name will be text filled in the name column with the extension .XLSX above Open the above file from your download directory (typically it's located in the path " C:\Users\username\Downloads")- Default application for the file is Excel.



The Excel file contains 5 columns. These columns are used for the real-time data linking.

Your company spare part list columns can be freely copied to the right side of alarmLimit column. In case u have some spare part template use Excel copy paste or fill wanted columns one by one.



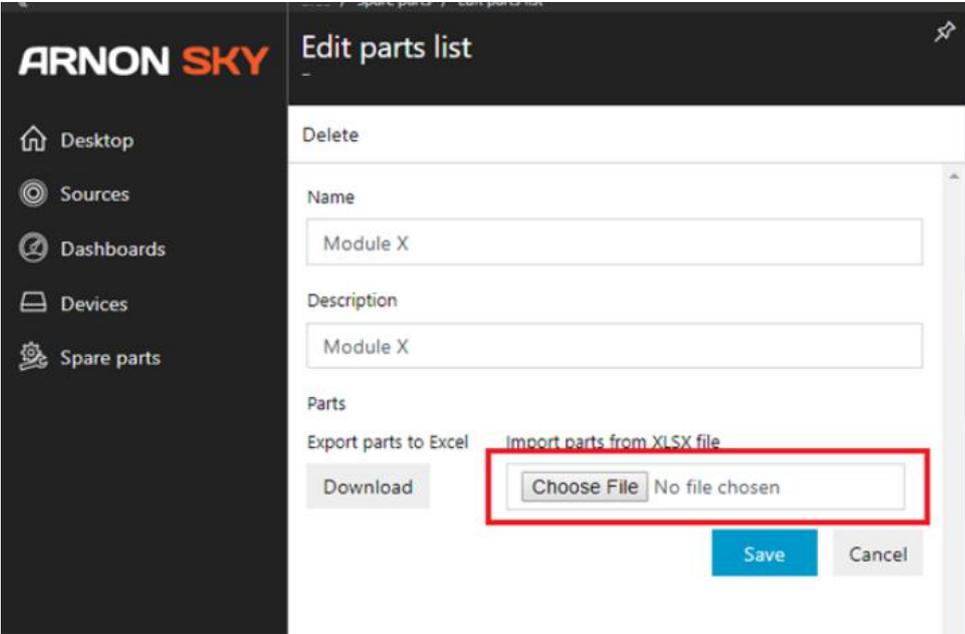
Example: Some columns added for the spare part list (yellow background).

Note! You can freely select column names.

Spare part list will use header names (first column) while showing the form in the Arnon Sky.

Do not replace automatically created existing columns (5 pcs.) these are mandatory fields needed for the real-time data linking.

7. Save the file and upload it to Arnon Sky by pressing Choose File button.



8. After file is selected press save button. Your first spare part form is created.

The screenshot shows the 'Edit parts list' interface in ARNON SKY. The sidebar on the left contains navigation icons for Desktop, Sources, Dashboards, Devices, and Spare parts. The main area has a breadcrumb trail: / Spare parts / Edit parts list. The 'Delete' section is visible. The 'Name' field contains 'Module X' and the 'Description' field also contains 'Module X'. Under the 'Parts' section, there are two options: 'Export parts to Excel' with a 'Download' button, and 'Import parts from XLSX file' with a 'Choose File' button and a file name 'Mein Shiff 2 (1) (1).xlsx'. Below the file selection, it says 'XLSX file uploaded.' and there are 'Save' and 'Cancel' buttons. The 'Save' button is highlighted with a red box.

Next chapter will explain real-time data linking for your spare part form.

Linking real-time data to the spare part items.

Arnon Sky having real time data from the different ships and modules. This data can be used like “predictive information” about unit usage and estimation of the spare part needs.

Created spare part form and items inside it can be linked for “live” by linking items to the incoming data. Spare part form will then indicate according to the set limits and real time information when there is need for maintenance or new part.

For the data linking some items need to be configured to the system.

Real time data linking items

There are 5 required columns on the spare parts excel sheet. The columns are used to configure the data link to the spare parts.

sourceId - This is source number of the live data referring to ship or module.

tagname - This is data which value will be compared to the warning and alarm limit. Tagname is typically same which is mentioned in automation system.

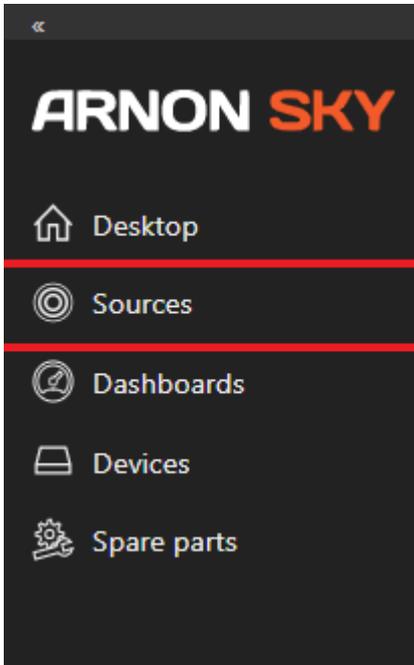
startRunningHours - This is used as beginning value (when installing to existing module where is some running hours already exist) , also in the case when spare part is changed this value should be changed according existing hours if hours are not reset in the automation level.

warningLimit - This limit is used for the pre warning in the spare part form indicated YELLOW colour.

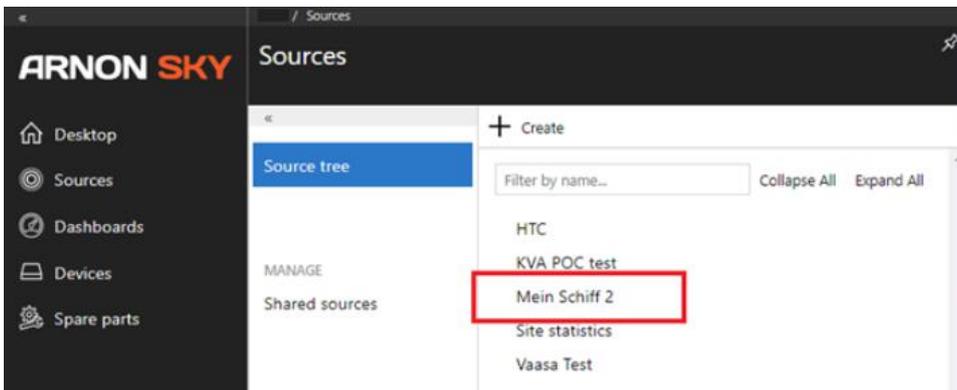
alarmLimit - This limit is used for the alarm in the spare part form indicated RED colour.

Sourceld

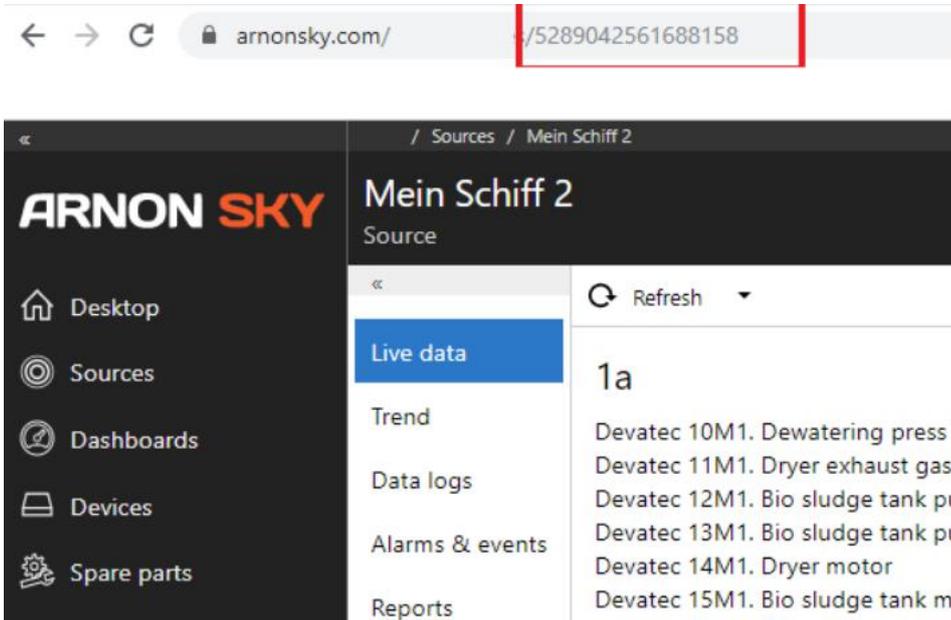
1. Find Sourceld . Select source from the menu. New window will be opened.



2. Select correct ship or module from the menu



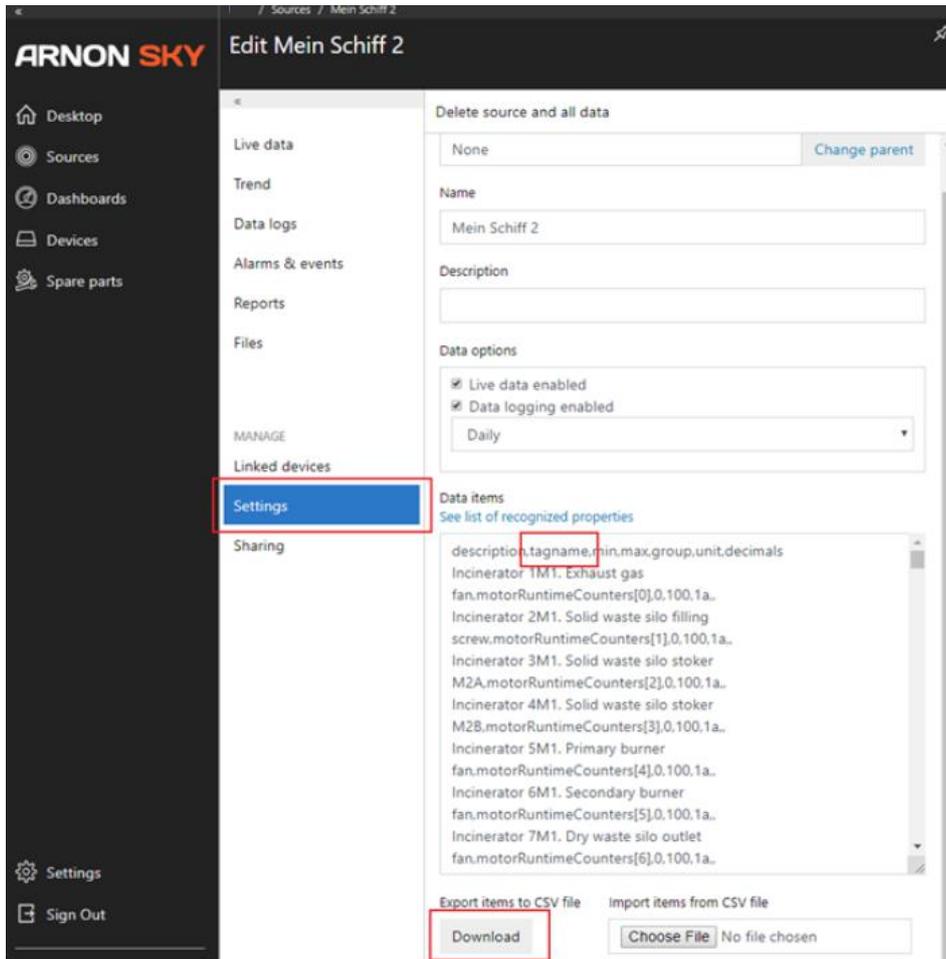
3. Sourceid is present in the address bar. Note that each ship and module can have own Sourceid.



Example. Mein Schiff 2 Sourceid is 5289042561688158

Tagname

1. Find Tagname – Tagname is mentioned in the automation IO List. Arnon Sky having tagnames as well , an list can be exported to the csv format , **anyhow it's recommended to use automation manufacturer's list since Arnon Sky using copy of it.**



Tagname can be exported via settings menu -> download

StartRunningHours, warningLimit and alarmLimit

These hour limits are used in the live data comparison and colours in the spare part form. Set the correct limits according spare part.

When part is changed, change *startRunningHours* according existing hour (if running hour is not reset in automation system). Arnon Sky will automatically minus *startRunningHours* from the incoming live data.

Data linking example steps.

1. Open *empty spare part.xlsx* file where is 5 mandatory columns.
2. Open *your spare part list*.
3. Copy wanted rows from *your spare part list* to the *empty spare part.xlsx* file. Paste selected rows free column right to existing items.
4. Your file is now like below

A	B	C	D	E	F	G	H	I	J	K
sourceId	tagname	startRunningHours	warningLimit	alarmLimit	ITEM No.	MODEL TYPE	TOP LEVEL ASSEMBLY PART NUMBER	TOP LEVEL ASSEMBLY DESCRIPTION	SECOND LEVEL ASSEMBLY PART NUMBER	SECOND LEVEL ASSEMBLY DESCRIPTION
					1	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
					2	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
					3	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
					4	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
					5	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
					6	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
					7	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
					8	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
					9	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.

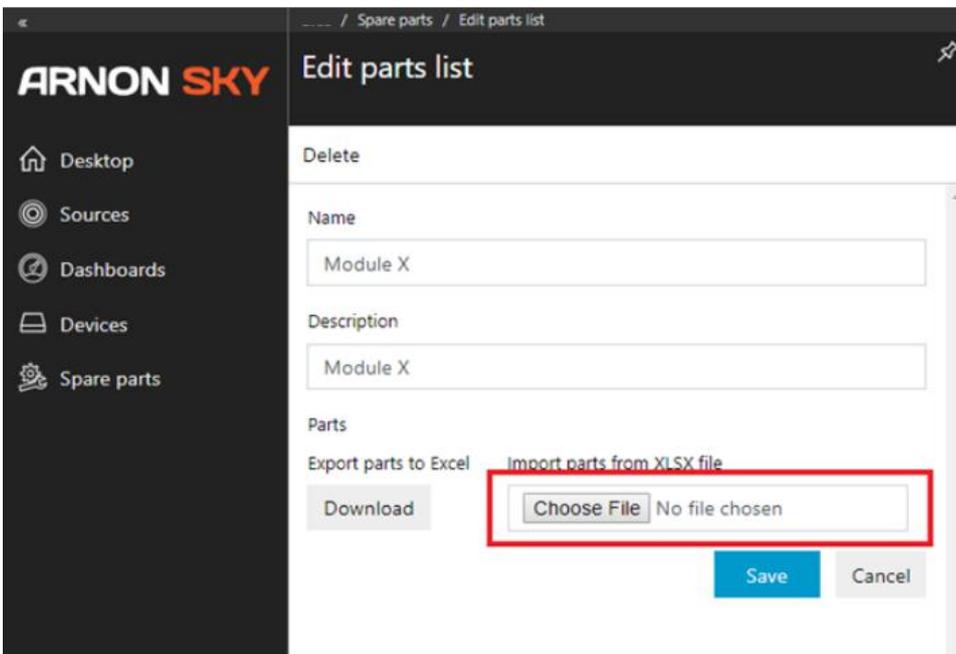
5. Solve sourceId from Arnon Sky. SourceId in example case is 5289042561688158
6. Solve related tagname from the automation list or from the Arnon Sky
In example case tagnames are motorRuntimeCounters[0]- motorRuntimeCounters[8]
7. Fill sourceId and tagnames to the spare part sheet. List is now like

A	B	C	D	E	F	G	H	I	J	K
sourceId	tagname	startRunningHours	warningLimit	alarmLimit	ITEM No.	MODEL TYPE	TOP LEVEL ASSEMBLY PART NUMBER	TOP LEVEL ASSEMBLY DESCRIPTION	SECOND LEVEL ASSEMBLY PART NUMBER	SECOND LEVEL ASSEMBLY DESCRIPTION
528904256168815843	motorRuntimeCounters[0]				1	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
528904256168815843	motorRuntimeCounters[1]				2	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
528904256168815843	motorRuntimeCounters[2]				3	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
528904256168815843	motorRuntimeCounters[3]				4	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
528904256168815843	motorRuntimeCounters[4]				5	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
528904256168815843	motorRuntimeCounters[5]				6	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
528904256168815843	motorRuntimeCounters[6]				7	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
528904256168815843	motorRuntimeCounters[7]				8	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
528904256168815843	motorRuntimeCounters[8]				9	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.

8. Fill start, warning and alarm hours according your maintenance introduction. In case system is "old" and having some running hours already set startingrunninghour according to real hour. In example system is new and startRunningHours is set to 0

	A	B	C	D	E	F	G	H	I	J	K
	sourceId	tagname	startRunningHours	warningLimit	alarmLimit	ITEM No.	MODEL TYPE	TOP LEVEL ASSEMBLY PART NUMBER	TOP LEVEL ASSEMBLY DESCRIPTION	SECOND LEVEL ASSEMBLY PART NUMBER	SECOND LEVEL ASSEMBLY DESCRIPTION
1	528904256168815843	motorRuntimeCounters[0]	0	4500	5000	1	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
2	528904256168815843	motorRuntimeCounters[1]	0	4500	5000	2	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
3	528904256168815843	motorRuntimeCounters[2]	0	4500	5000	3	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
4	528904256168815843	motorRuntimeCounters[3]	0	4500	5000	4	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
5	528904256168815843	motorRuntimeCounters[4]	0	4500	5000	5	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
6	528904256168815843	motorRuntimeCounters[5]	0	4500	5000	6	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
7	528904256168815843	motorRuntimeCounters[6]	0	7200	7700	7	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
8	528904256168815843	motorRuntimeCounters[7]	0	7200	7700	8	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.
9	528904256168815843	motorRuntimeCounters[8]	0	7200	7700	9	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003, CPLT.

9. Save your sheet and we are ready to import file to the Arnon Sky



10. Choose file from the correct location and press Save. Arnon Sky will show your report after file is loaded and linking real time data to it.

SPARE PARTS INTERFACE

Spare parts interface gives real time information about needed spare parts. Arnon Sky using colours Green, Yellow and Red. Colours are live and depended about the limit you set. Running hour information coming directly from the site and its automation system.

Status and Running hours are static rows all the rest are depended your configuration. In this phase of service, use Excel for modification. In Excel you can easily add or remove columns which are not needed in the form.

You can filter list by using free charters in any filter box. That makes you easy to find status of specific spare part.

Status summary row calculates and show different status amounts from the selected list. Summary row can be hidden from the Hide summary menu.

Status	Running hours	ITEM No.	MODEL TYPE	TOP LEVEL ASSEMBLY PART NUMBER	TOP LEVEL ASSEMBLY DESCRIPTION	SECOND LEVEL ASSEMBLY PART NUMBER	SECOND LEVEL ASSEMBLY DESCRIPTION	THIRD LEVEL ASSEMBLY PART NUMBER
Replace soon	25:10	1	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003_CPLT	X001819
Replace now	25:10	2	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003_CPLT	X000495
OK	25:10	3	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003_CPLT	X001762
OK	25:10	4	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003_CPLT	X003907
OK	25:10	5	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003_CPLT	X003908
OK	25:10	6	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003_CPLT	X001777
OK	25:10	7	AC30	X004763	AIR SERVICE UNIT FOR 5514.V003	X004763	MAINTENANCE UNIT AC30-LCH003_CPLT	X001818

BACKUPS

Currently system doesn't keep backups of uploaded spare parts lists.

Take care of revisioning of your project wise spare part list. **It's highly recommended that all change operations are started by downloading existing configuration from the Arnon Sky.**

TROUBLESHOOTING

Q: Spare part list is not visible after imported

A: There might be special charters in the sheet. Re-check your Excel file and remove possible special characters.

Q: Spare part list show "Invalid source" or "Invalid tagname"

A: Source by the configured sourceid or tagname does not exist. Please recheck your sourceid and tagname

Q: Permission denied

A: Your user policy restrict access to the requested function.

Q: Login to Arnon Sky failed

A: Make sure your username and password are input correctly.

Another option is that Microsoft Azure AD login service is down, please try login after some delay.

A: Some temporary downtime might occur due to maintenance of cloud services. Please try to login again after short delay. In case of planned service interruption (delay might be >1h) Arnon will inform to its customer about issue.

Q: Real time data not updated

A: There might be delay / interrupt in data flow from the ship or unit. Anyhow collector system buffering data and when communication lines are returned all data will be added to the Arnon Sky

A: Update work or changes in the ship or module might effect to data collector. If data flow is permanently down reason might be in the field level. Contact to Arnon.