

# Danfoss XML Driver

Installation and administration

Version: 1.2.1.0 (AX) / 2.0.1.0 (N4)

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Author: M.Meriano

# 1 Index

1 Index .....	2
2 Document History .....	3
3 Overview .....	3
4 Installation .....	3
5 License restrictions .....	4
6 Network parameters .....	4
Enabled .....	5
Health .....	5
Alarm class definition .....	6
Monitor / Ping Enabled .....	6
Miscellaneous .....	7
Alarm port .....	7
Fast Rate, Normal Rate and Slow Rate .....	7
Fast Rate .....	7
Normal Rate .....	7
Slow Rate .....	7
Address .....	7
Authorization Code (Password) .....	8
Account Code (User Name) .....	8
License Device Limit .....	8
7 Device parameters .....	8
D Name .....	9
D Device Id .....	9
D Type .....	9
D Node .....	9
D Sect .....	9
8 Connection and timeout handling .....	9
9 Alarmrouting Danfoss AK-SM850 .....	11

## 2 Document History

Filename: ssiDanfossAK255Xml\_1.2.1.0AX\_2.0.1.0N4.odt

Rev.	Date	Author	Description
1.2.1.0 2.0.1.0	23.8.2022	M-Meriano	Update for version N4.4/4.8/4.9/4.10+
1.2.1.0 2.0.1.0	07-APR-2021	S. Strapparava	Minor modifications
1.2.0.0 2.0.0.0	04-NOV-2016	I.Z.Toth	Update for the new AX/N4 version.
1.3.0.0	03-OCT-2016	I.Z.Toth	Modifications for the missing 'host' attribute.
1.1.0.1	22-MAY-2015	I.Z.Toth	First draft.

## 3 Overview

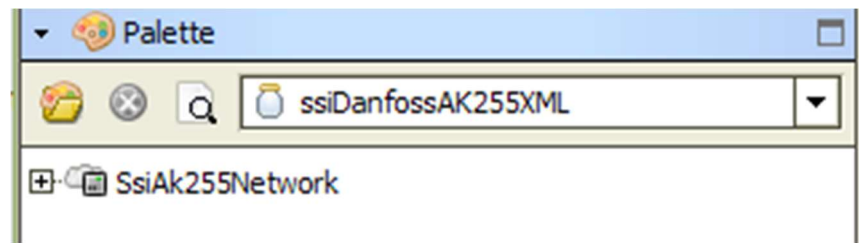
This document contains the basic instructions for the installation and administration of the SSI-DR-AKSC - SSI Driver for Danfoss AK255 XML Networks.

The instructions included in this file are applicable both for the software version 1.2.0.0 running on Niagara 3.8 and the software version 2.1.0.0 running on Niagara 4.0.

## 4 Installation

Steps for driver installation:

1. Install the ssiDanfossAK255XML module.
2. License the unit for the alvasys automation ag vendor and ssiDanfossAK255Xml feature.
3. Add the SsiAk255Network from the ssiDanfossAK255Xml palette.
4. Set address, authorization code and account code parameters of the SsiAk255Network.
5. Discover and add devices.



There is no restriction on the number of networks added to one unit.

## 5 License restrictions

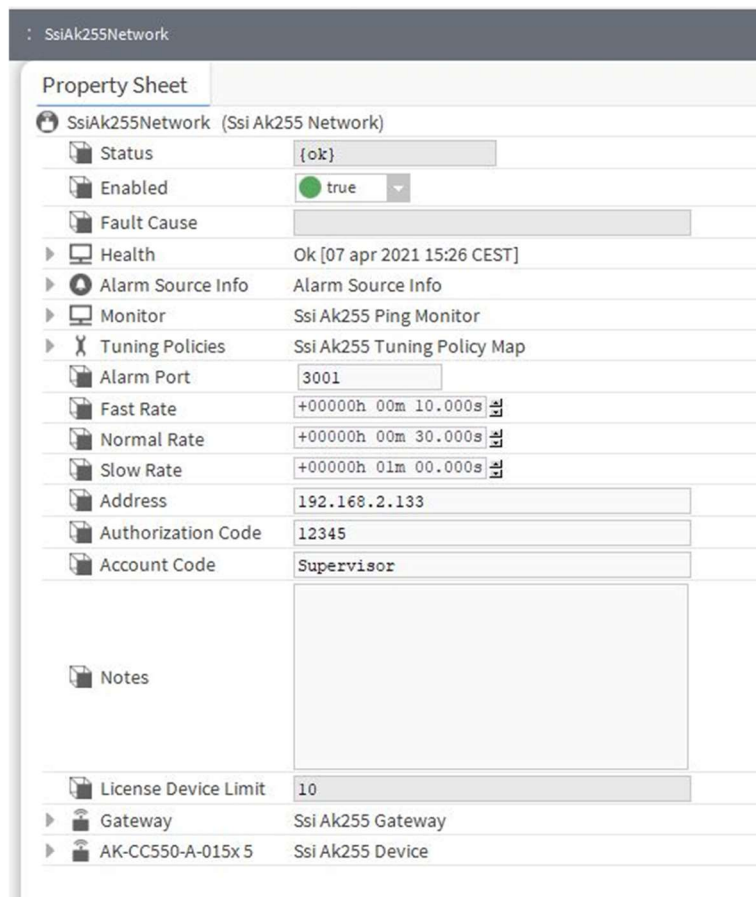
The driver is limited by the number of active devices.

SSI CODES	DESCRIPTION	No. of active devices ↓
SSI-DR-AKSC10	SSI Driver for Danfoss AK255 XML Networks 10 devices	1-10
SSI-DR-AKSC20	SSI Driver for Danfoss AK255 XML Networks 20 devices	11-20
SSI-DR-AKSC50	SSI Driver for Danfoss AK255 XML Networks 50 devices	21-50

The figure shows all the possible options. Select the proper one for your application at the time of your order.

**IMPORTANT:** It is possible to configure a number of devices higher than the one related to the license (i.e. 12 even if the license is for 10 active devices) but the driver will manage the first 10 on the Station Data Base and ignore the other 2.

## 6 Network parameters



Property Sheet	
SsiAk255Network (Ssi Ak255 Network)	
Status	{ok}
Enabled	true
Fault Cause	
Health	Ok [07 apr 2021 15:26 CEST]
Alarm Source Info	Alarm Source Info
Monitor	Ssi Ak255 Ping Monitor
Tuning Policies	Ssi Ak255 Tuning Policy Map
Alarm Port	3001
Fast Rate	+000000h 00m 10.000s
Normal Rate	+000000h 00m 30.000s
Slow Rate	+000000h 01m 00.000s
Address	192.168.2.133
Authorization Code	12345
Account Code	Supervisor
Notes	
License Device Limit	10
Gateway	Ssi Ak255 Gateway
AK-CC550-A-015x 5	Ssi Ak255 Device

The figure shows the Property Sheet of the SsiAk255Network as it appears in the Niagara N4 interface. The name “SsiAk255Network” refers to the first driver of this serie which was developed for the AK-SC255 Danfoss Gateway. It remained unchanged for the Danfoss 850 product family and virtually may work for both the gateway as the XML interface is the same.

## Enabled

When true the driver establishes TCP/IP connection to the gateway and continues normal operation. The driver does not close the network connection when switched to False.

## Health

The figure below shows the set of information related to the status of the connection between the Jace and the gateway.



Health	Ok [07 apr 2021 15:41 CEST]
Down	false
Alarm	false
Last Ok Time	07 apr 2021 15:41 CEST
Last Fail Time	null
Last Fail Cause	

The figure is self-explaining.

## Alarm class definition

Alarm Source Info	
Alarm Class	DanfossAlarmClass
Source Name	%parent.displayName%
To Fault Text	
To Offnormal Text	%lexicon(driver:pingFail)%
To Normal Text	%lexicon(driver:pingSuccess)%
Hyperlink Ord	null (Default View)
Sound File	null
Alarm Icon	null
Alarm Instructions	0 Instructions
Meta Data	

Alarms are sent from the Danfoss gateway and logged in Niagara as alarm events.

They can be viewed and managed like any another alarm event generated from inside the system, via an alarm console or directly inside the device by going to the Alarms container of the device.

When an alarm event is triggered on the Danfoss Server, the received message creates, if it does not exist, a point in the alarm container of the device, which follows the status of the event.

For a complete guide on how to carry out the mutual configuration of the Jace8000 and the Danfoss gateway, refer to the manual “**Danfoss AK-SM 850 – Alarm routing configuration to Niagara N4**” which is part of the documentation supplied with this driver.

## Monitor / Ping Enabled

Monitor	Ssi Ak255 Ping Monitor
Ping Enabled	<span style="color: red;">●</span> false
Ping Frequency	+00000h 05m 00s
Alarm On Failure	<span style="color: green;">●</span> true
Startup Alarm Delay	+00000h 05m 00s

This parameter has to be false during the installation phase. The standard ping mechanism sends a very high number of messages when the device is offline and this has to be avoided to prevent unnecessary wireless traffic.

The driver will send periodic messages to devices in intervals set by the timeout parameters of the network.

## Miscellaneous

Alarm Port	3001
Fast Rate	+00000h 00m 10.000s
Normal Rate	+00000h 00m 30.000s
Slow Rate	+00000h 01m 00.000s
Address	192.168.2.133
Authorization Code	12345
Account Code	Supervisor
Notes	
License Device Limit	10

## Alarm port

The TCP/IP port on which the driver listens for alarm messages sent by the gateway to the Jace. Default value is 3001. The gateway has to be configured accordingly to send alarm messages to the driver.

For a correct configuration of the Danfoss Gateway, refer to the manual “**Danfoss AK-SM 850 – Alarm routing configuration to Niagara N4**”.

## Fast Rate, Normal Rate and Slow Rate

These parameters are the configurable polling times to determine how often the current point values are requested by the driver from the Danfoss gateway and are then used in the ProxyExt of the points.

We recommend to use reasonable values for these settings. Very fast polling generates a lot of traffic and in the worst case, may cause the Danfoss Gateway to crash.

## Fast Rate

Polling rate for points with “Fast” polling setting.

## Normal Rate

Polling rate for points with “Normal” polling setting.

## Slow Rate

Polling rate for points with “Slow” polling setting.

## Address

DNS name or TCP/IP address of the Danfoss gateway unit.

## Authorization Code (Password)

The authorization code to use when logging into the Danfoss gateway unit.

## Account Code (User Name)

The account code to use when logging into the Danfoss gateway unit.

## License Device Limit

The number of devices the license allows for one HostID unit.

## 7 Device parameters

The parameters of the devices are set during device discovery and add. The driver does not update parameters automatically (for example in case of software upgrade).

Trocador 2 (Ssi Ak255 Device)	
<input type="checkbox"/> Status	{ok}
<input type="checkbox"/> Enabled	<input checked="" type="radio"/> true
<input type="checkbox"/> Fault Cause	
<input checked="" type="checkbox"/> Health	Ok [15-Sep-15 9:45 AM CEST]
<input checked="" type="checkbox"/> Alarm Source Info	Alarm Source Info
<input type="checkbox"/> D Name	
<input type="checkbox"/> D Device Id	084B7088_012x
<input type="checkbox"/> D Type	EVAP
<input type="checkbox"/> D Node	3
<input type="checkbox"/> D Sect	1
<input checked="" type="checkbox"/> Points	Ssi Ak255 Point Device Ext
<input checked="" type="checkbox"/> Alarms	Ssi Ak255 Alarm Device Ext
<input type="checkbox"/> Notes	



## **D Name**

Name of the device as configured in the Danfoss gateway.

## **D Device Id**

Product ID and version of the device as reported by the Danfoss gateway.

## **D Type**

Type of the device as reported by the Danfoss gateway.

## **D Node**

Node number of the device. This is the address of the device in the Danfoss Network.

## **D Sect**

Section number of the device. For multi section devices, care has to be taken when adding the device to the network as all sections will contain all points of the given device.

## **8 Connection and timeout handling**

For every read and write the driver opens a new connection to the gateway. The timeout for opening the network connection is 5 seconds.

After the connection is established the driver sends the request to the gateway and waits for the answer. The timeout for the answer is 5 seconds.

If the connection cannot be opened or a timeout happens, the driver:

For reads:

- retries the sending, this may happen 3 times,
- if all 3 tries are unsuccessful puts the network into down status.

For writes:

- tries to send the write only once.



## 9 Alarmrouting Danfoss AK-SM850

Date: Mar 21

Ver.: 1.0

Author: Stefano Strapparava

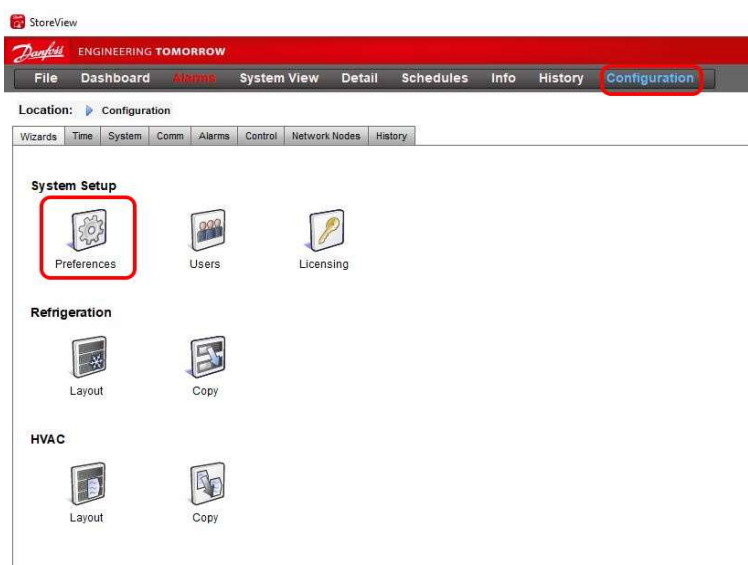
This document describes how to align a Danfoss AK-SM 8xx unit to a Tridium Jace8000 via SSI-DR-AKSC in order to have the alarms, generated in the AK-SM 8xx forwarded to the Jace.

Screen shots samples have been taken by a network running at SSI lab and made by the following units:

- Danfoss AK-SC 850 running at IP: 192.168.2.133
- AK-CC 550 connected to the 850 unit via Danfoss Modbus Network
- Tridium Jace 8000 running at IP: 192.168.2.135

1. With the Danfoss StoreView sw. get connected to the gateway 850.

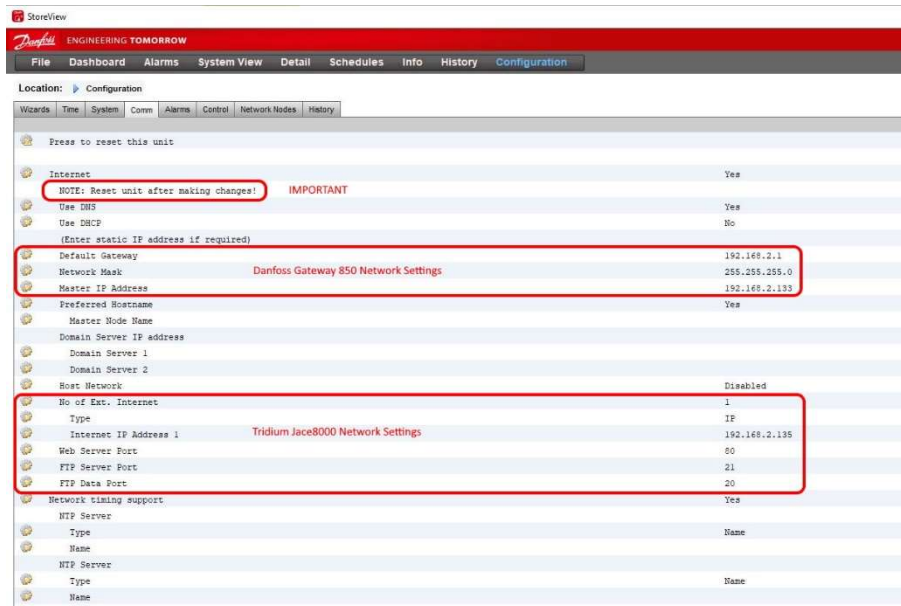
It is possible to continue the configuration both with the System Setup Wizard Preferences or with the Configuration Menu option on the top bar. We suggest the Configuration menu option.



2. Open the Comm tab, in the configuration menu.

Define the Network details as shown in the following screen shots (it refers to the system running in our lab, as described before).

**IMPORTANT:** after any change, perform a reboot of the unit in order to make them effective.



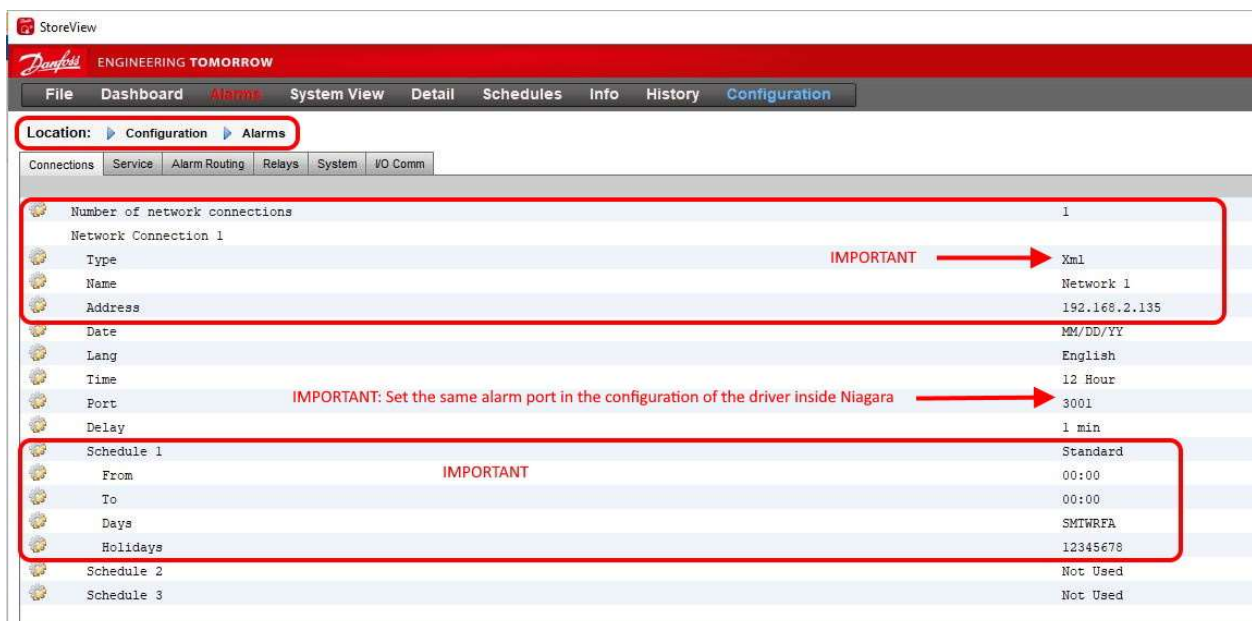
### 3. Open Configuration – Alarms – Connection Tab

Define at least one Network connection (Network Connection 1 in this example)

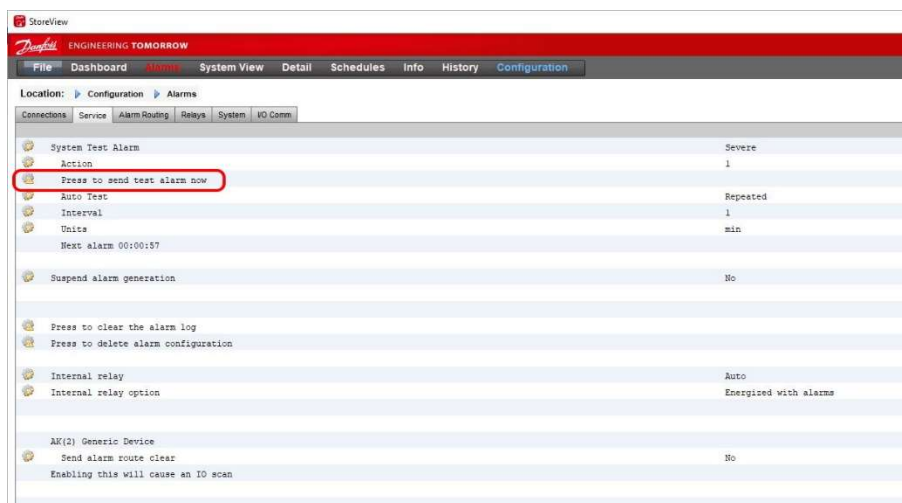
Define the Network connection details to the Jace.

IMPORTANT: Set the connection type as XML as shown.

Define at least one schedule (Schedule 1 in this sample) even if left empty.



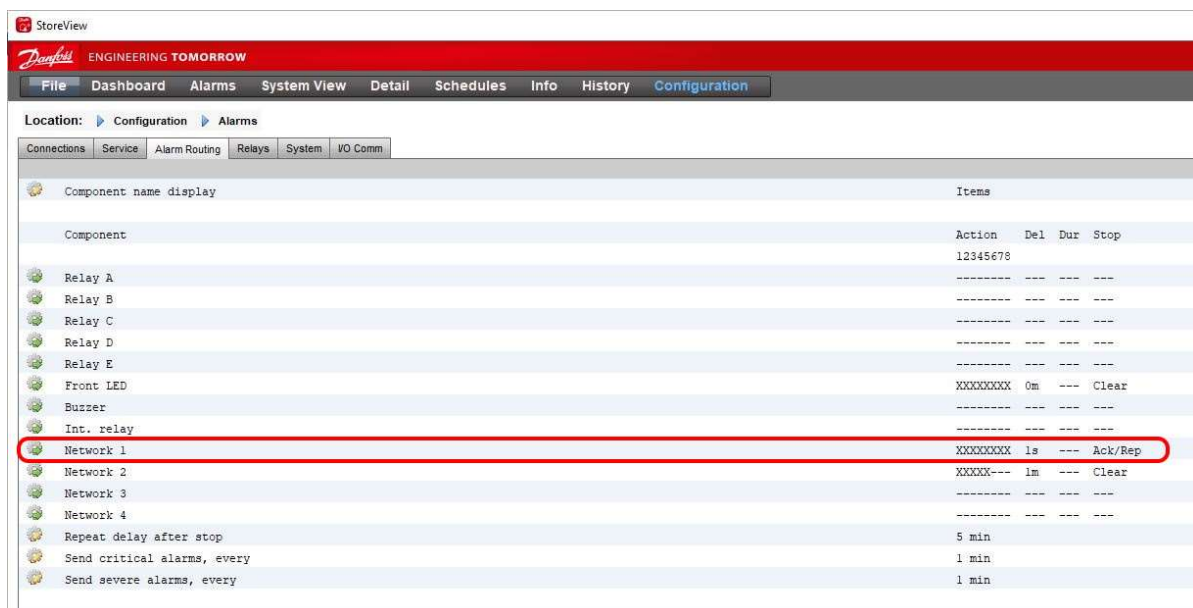
#### 4. Open Configuration – Alarms – Service Tab



In this page it is possible to configure the utilities to force the system to generate alarms without waiting for a real alarm coming up.

#### 5. Open Configuration – Alarms – Alarm Routing Tab

Check that the Network 1 is present.



Check that all the actions are Enabled.

StoreView

**ENGINEERING TOMORROW**

File Dashboard Alarms System View Detail Schedules Info History Configuration

Location: Configuration Alarms Alarm Routing

Alarm Routing

Action 1	Enabled
Action 2	Enabled
Action 3	Enabled
Action 4	Enabled
Action 5	Enabled
Action 6	Enabled
Action 7	Enabled
Action 8	Enabled
Delay	1
Units	seconds
Stop	Ack/Rep
Send alarms when cleared	Yes

Under the Configuration – Alarm – System, it's possible to see all the alarms related to the general status of the Danfoss Gateway 850.

StoreView

**ENGINEERING TOMORROW**

File Dashboard Alarms System View Detail Schedules Info History Configuration

Location: Configuration Alarms

Connections Service Alarm Routing Relays System I/O Comm

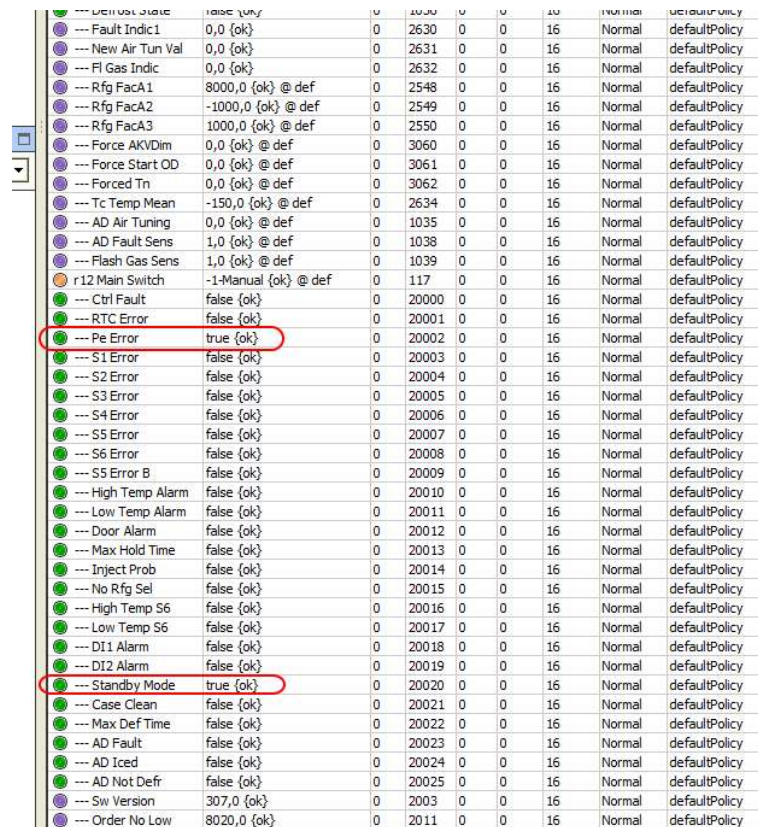
Host Comm error	Action	Normal
Host count error	Action	Normal
I/O Network fail	Action	Normal
Flash memory fail	Action	Normal
Database Cleared	Action	Normal
File Error	Action	Normal
Alarm send failed		Log Only
NTP Failure		Log Only
RAM disk full	Action	Normal
Freq Response On		Log Only
Ethernet fail	Action	Normal
Static IP fail	Action	Normal
DHCP failure	Action	Normal
DNS failure	Action	Normal

## 6. Examples of alarms flow from Danfoss 850 to Jace8000

Alarms are sent from the Danfoss server and logged in Niagara as alarm events. They can be viewed and managed like any other alarm event generated from inside the system, via an alarm console or directly inside the device by going to the Alarms container of the device.

When an alarm event is triggered on the Danfoss Server, the received message creates, if it does not exist, a point in the alarm container of the device, which follows the status of the event.

Alarms are also generated inside Niagara as Boolean Proxy Points as shown:



Point Name	Value	Unit	Min	Max	Resolution	Alarm Type	Default Policy	
--- Defrost State	false {ok}	0	0	0	16	Normal	defaultPolicy	
--- Fault Indic1	0,0 {ok}	0	2630	0	0	16	Normal	defaultPolicy
--- New Air Tun Val	0,0 {ok}	0	2631	0	0	16	Normal	defaultPolicy
--- Fl Gas Indic	0,0 {ok}	0	2632	0	0	16	Normal	defaultPolicy
--- Rfg FacA1	8000,0 {ok} @ def	0	2548	0	0	16	Normal	defaultPolicy
--- Rfg FacA2	-1000,0 {ok} @ def	0	2549	0	0	16	Normal	defaultPolicy
--- Rfg FacA3	1000,0 {ok} @ def	0	2550	0	0	16	Normal	defaultPolicy
--- Force AKVDim	0,0 {ok} @ def	0	3060	0	0	16	Normal	defaultPolicy
--- Force Start OD	0,0 {ok} @ def	0	3061	0	0	16	Normal	defaultPolicy
--- Forced Tn	0,0 {ok} @ def	0	3062	0	0	16	Normal	defaultPolicy
--- Tc Temp Mean	-150,0 {ok} @ def	0	2634	0	0	16	Normal	defaultPolicy
--- AD Air Tuning	0,0 {ok} @ def	0	1035	0	0	16	Normal	defaultPolicy
--- AD Fault Sens	1,0 {ok} @ def	0	1038	0	0	16	Normal	defaultPolicy
--- Flash Gas Sens	1,0 {ok} @ def	0	1039	0	0	16	Normal	defaultPolicy
r12 Main Switch	-1-Manual {ok} @ def	0	117	0	0	16	Normal	defaultPolicy
--- Ctrl Fault	false {ok}	0	20000	0	0	16	Normal	defaultPolicy
--- RTC Error	false {ok}	0	20001	0	0	16	Normal	defaultPolicy
--- Pe Error	true {ok}	0	20002	0	0	16	Normal	defaultPolicy
--- S1 Error	false {ok}	0	20003	0	0	16	Normal	defaultPolicy
--- S2 Error	false {ok}	0	20004	0	0	16	Normal	defaultPolicy
--- S3 Error	false {ok}	0	20005	0	0	16	Normal	defaultPolicy
--- S4 Error	false {ok}	0	20006	0	0	16	Normal	defaultPolicy
--- S5 Error	false {ok}	0	20007	0	0	16	Normal	defaultPolicy
--- S6 Error	false {ok}	0	20008	0	0	16	Normal	defaultPolicy
--- S5 Error B	false {ok}	0	20009	0	0	16	Normal	defaultPolicy
--- High Temp Alarm	false {ok}	0	20010	0	0	16	Normal	defaultPolicy
--- Low Temp Alarm	false {ok}	0	20011	0	0	16	Normal	defaultPolicy
--- Door Alarm	false {ok}	0	20012	0	0	16	Normal	defaultPolicy
--- Max Hold Time	false {ok}	0	20013	0	0	16	Normal	defaultPolicy
--- Inject Prob	false {ok}	0	20014	0	0	16	Normal	defaultPolicy
--- No Rfg Sel	false {ok}	0	20015	0	0	16	Normal	defaultPolicy
--- High Temp S6	false {ok}	0	20016	0	0	16	Normal	defaultPolicy
--- Low Temp S6	false {ok}	0	20017	0	0	16	Normal	defaultPolicy
--- D11 Alarm	false {ok}	0	20018	0	0	16	Normal	defaultPolicy
--- D12 Alarm	false {ok}	0	20019	0	0	16	Normal	defaultPolicy
--- Standby Mode	true {ok}	0	20020	0	0	16	Normal	defaultPolicy
--- Case Clean	false {ok}	0	20021	0	0	16	Normal	defaultPolicy
--- Max Def Time	false {ok}	0	20022	0	0	16	Normal	defaultPolicy
--- AD Fault	false {ok}	0	20023	0	0	16	Normal	defaultPolicy
--- AD Iced	false {ok}	0	20024	0	0	16	Normal	defaultPolicy
--- AD Not Defr	false {ok}	0	20025	0	0	16	Normal	defaultPolicy
--- Sw Version	307,0 {ok}	0	2003	0	0	16	Normal	defaultPolicy
--- Order No Low	8020,0 {ok}	0	2011	0	0	16	Normal	defaultPolicy

The same alarms in a controller AK-CC550, shown inside the Danfoss Store View and a Jace interface:

