



SABIK OFFSHORE



Carmannah
TECHNOLOGY SUMMIT 2018



SABIK OFFSHORE

MARK IT · LIGHT IT · KEEP IT SAFE

LightGuard Monitor

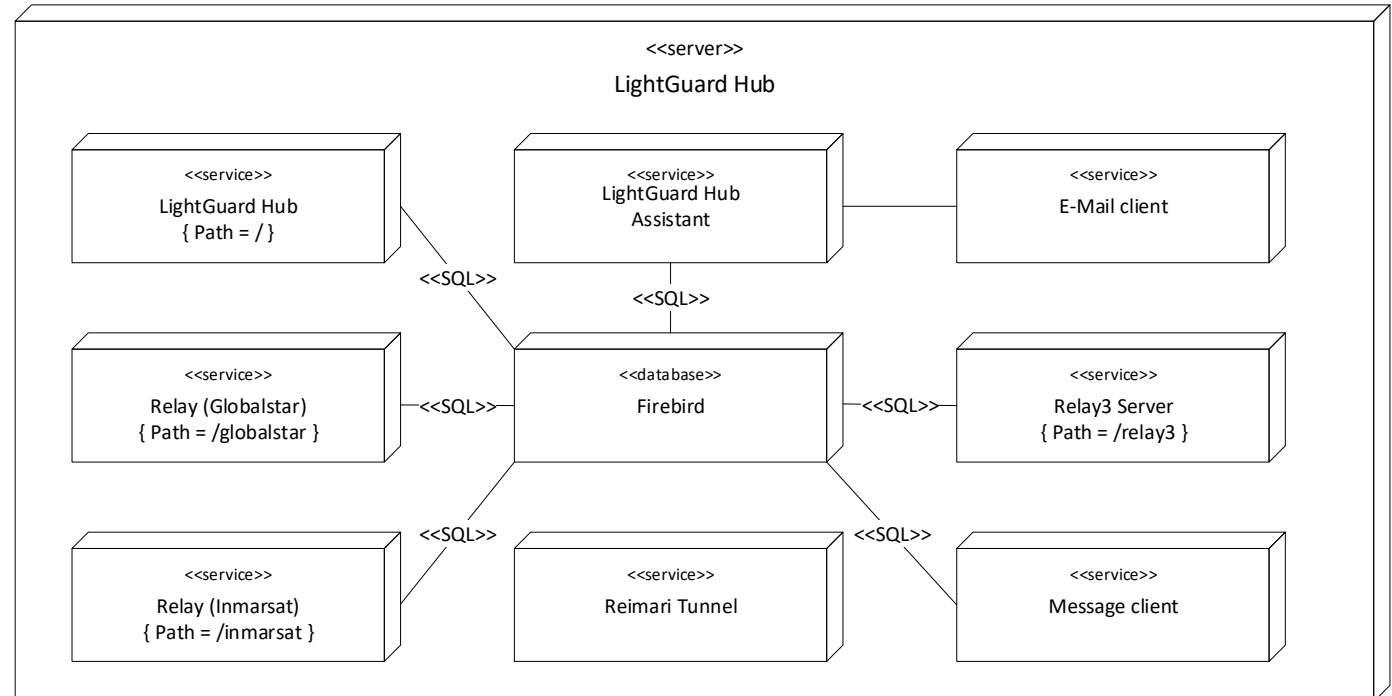


a **Carmanah** company

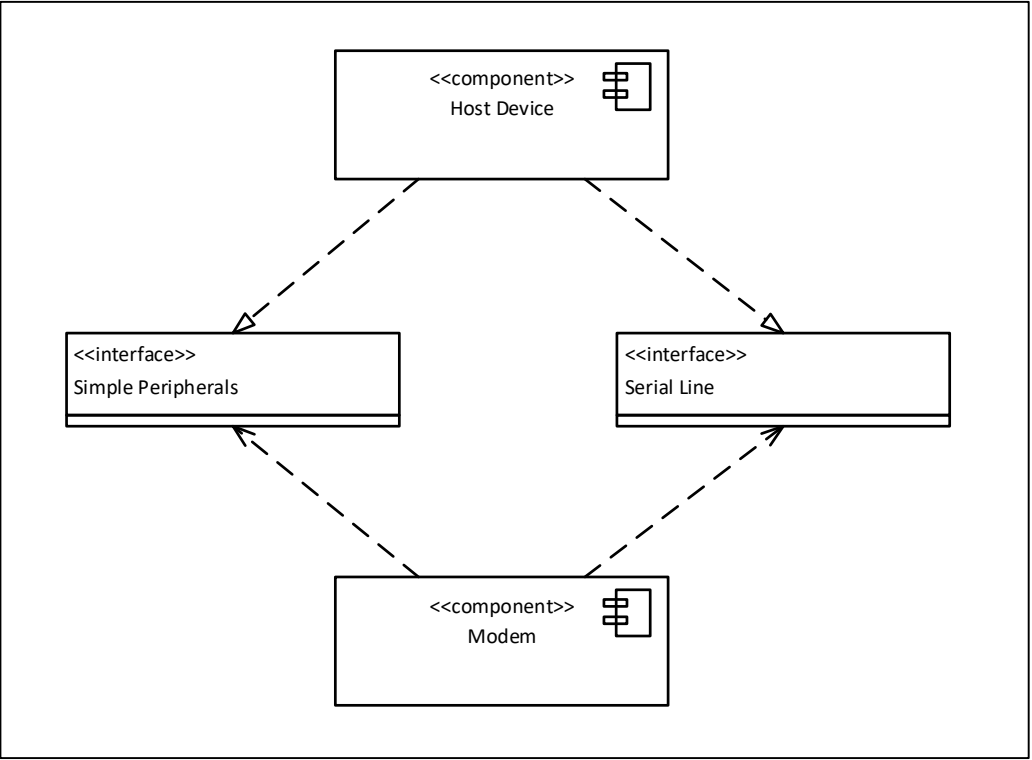
Web based AtoN monitoring and control?

LightGuard Monitor: LightGuard Hub

- Windows Server
- .NET Framework 4.5.2
- ASP.NET 4.5.1
- Firebird RDB
- RESTful-API

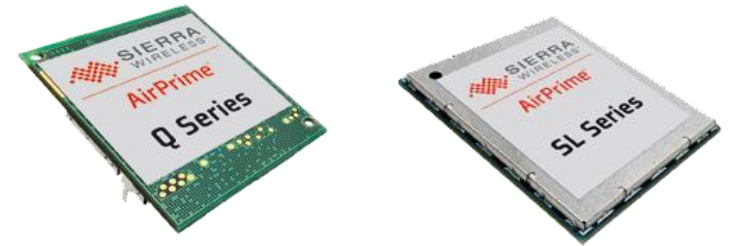


LightGuard Monitor: Stations

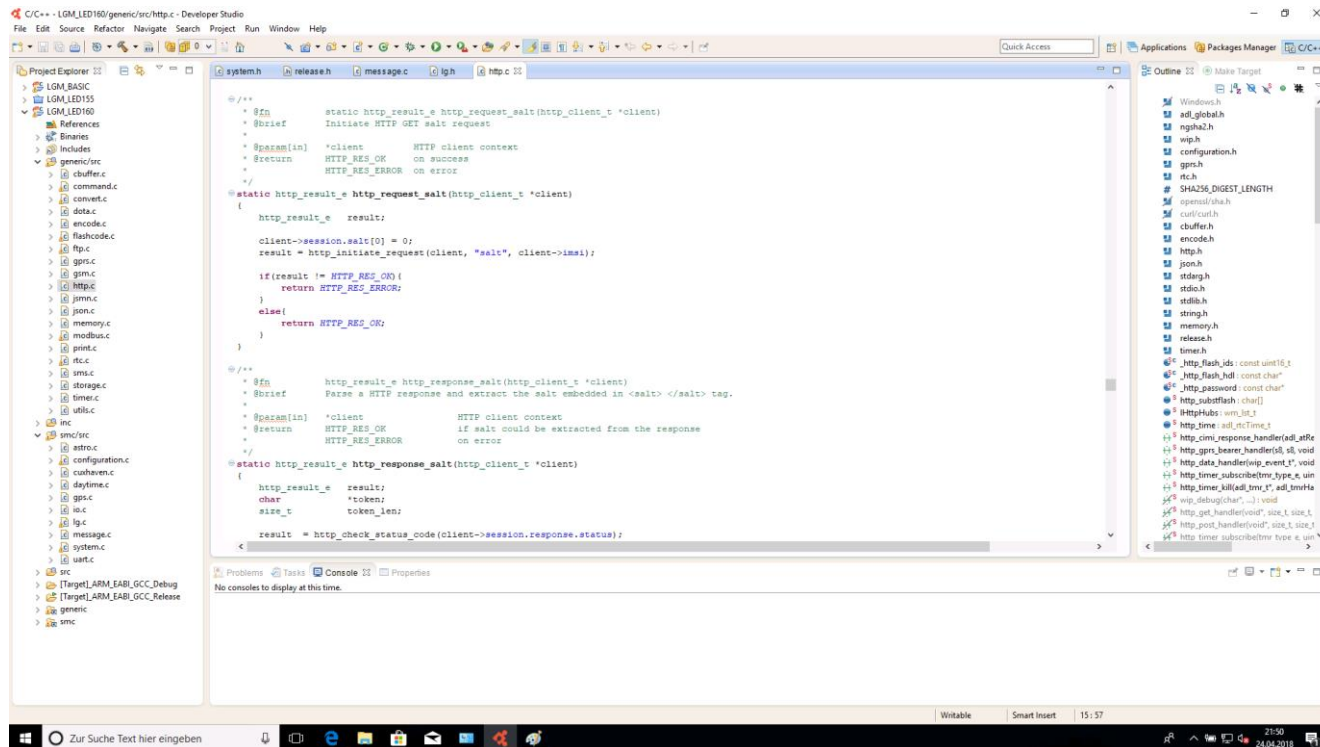


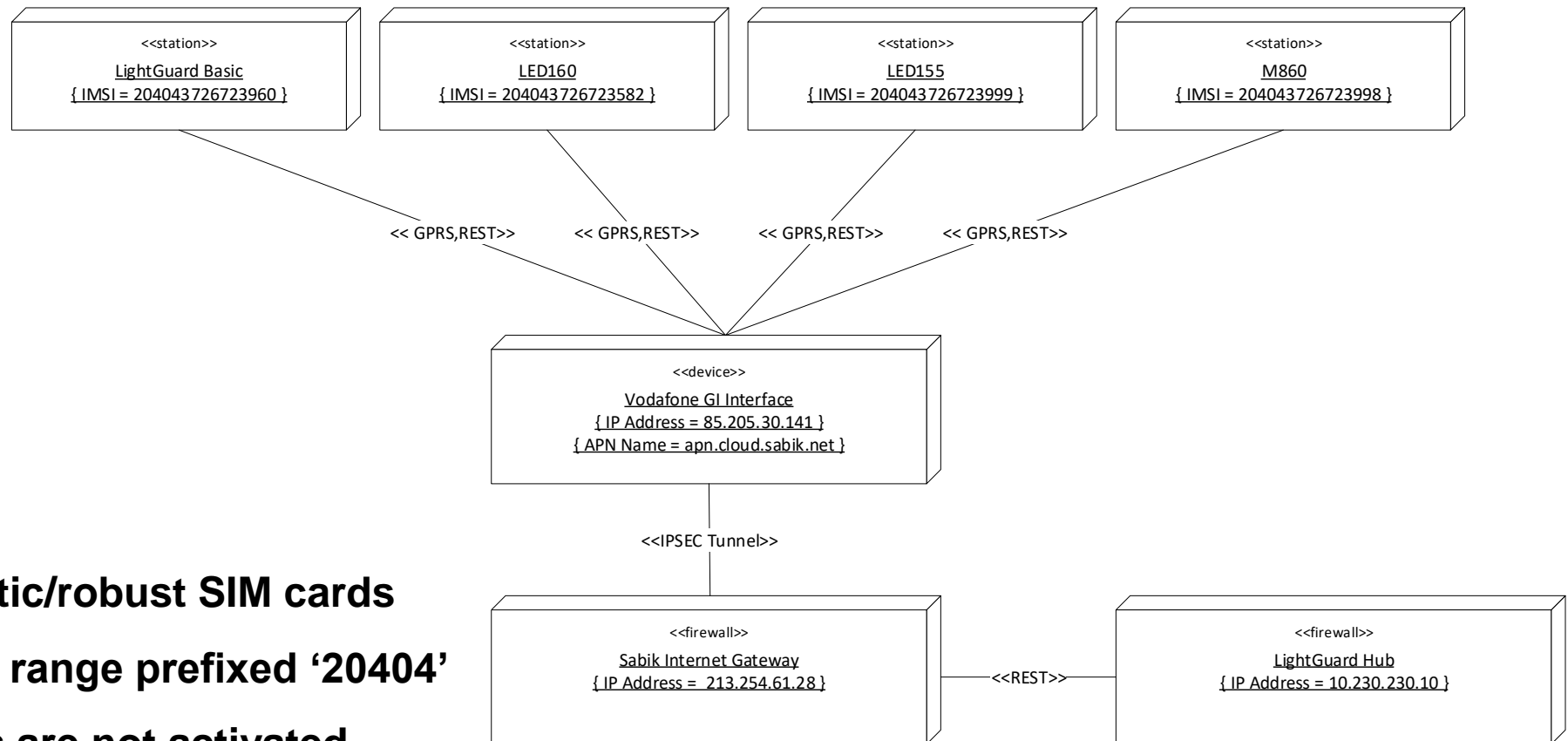
LightGuard Monitor: Cellular Network

- **Sierra Wireless AirPrime® Q and SL Series**
- **OpenAT OS 6.37 resp. 6.54**
- **WIP 5.43 resp. 5.58**
- **Security 1.5.0 resp. 2.2.2**



<https://www.sierrawireless.com/>

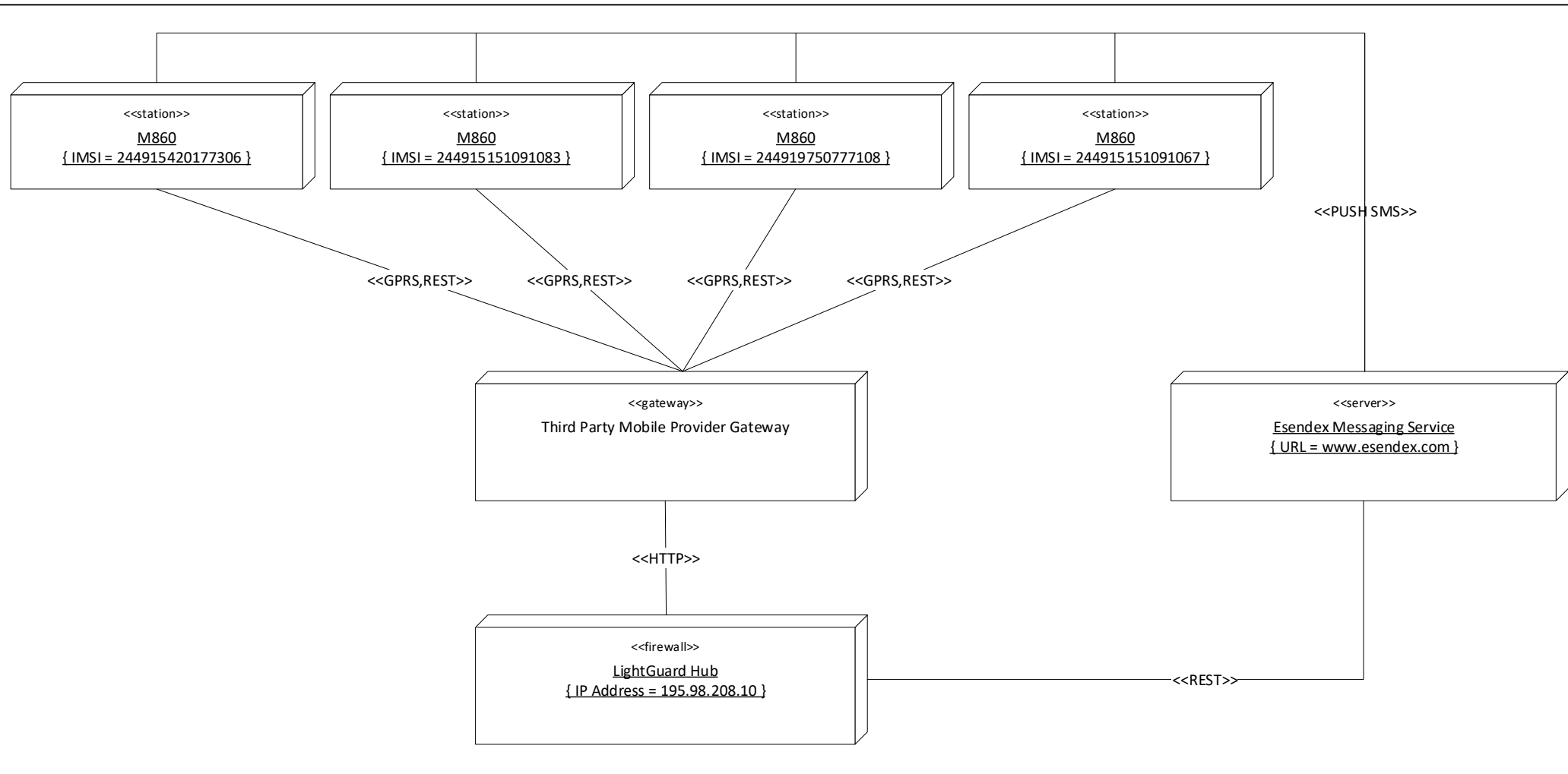




- plastic/robust SIM cards
- IMSI range prefixed '20404'
- PINs are not activated
- PUSH through Vodafone API
- SIM management

<https://m2mprdgui.vodafone.com/GDSPGui/login.htm>

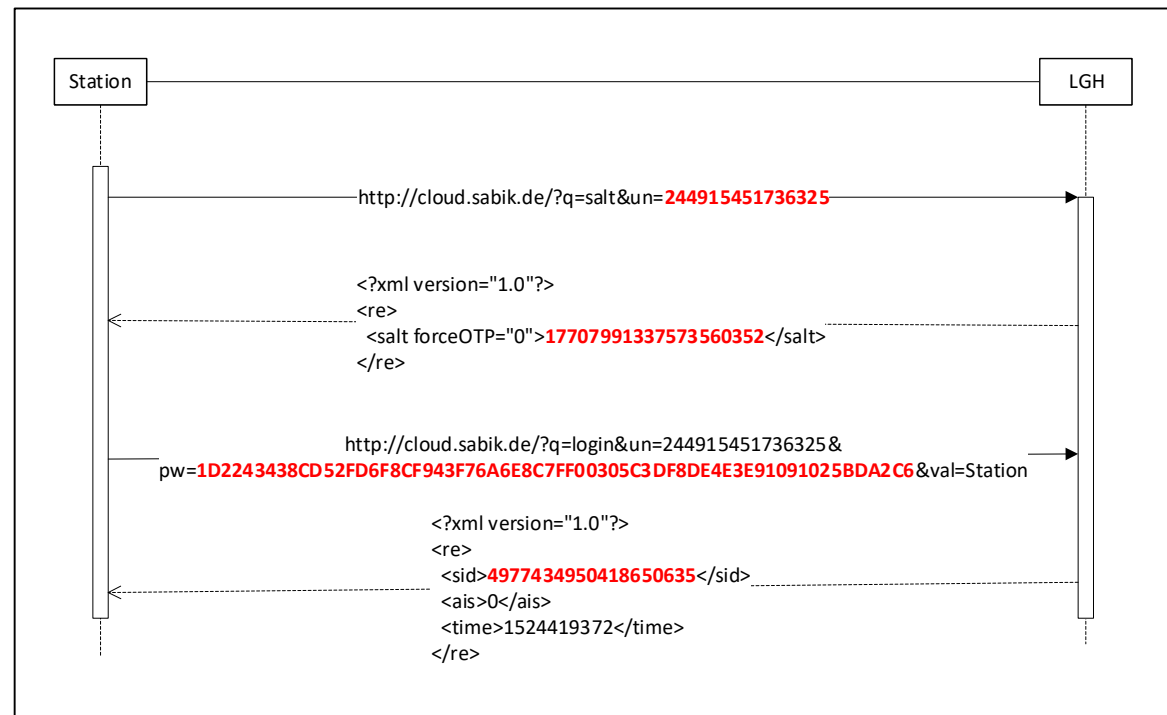
LightGuard Monitor: 3rd Party Cellular Network



- **PUSH through Esendex' messaging service**

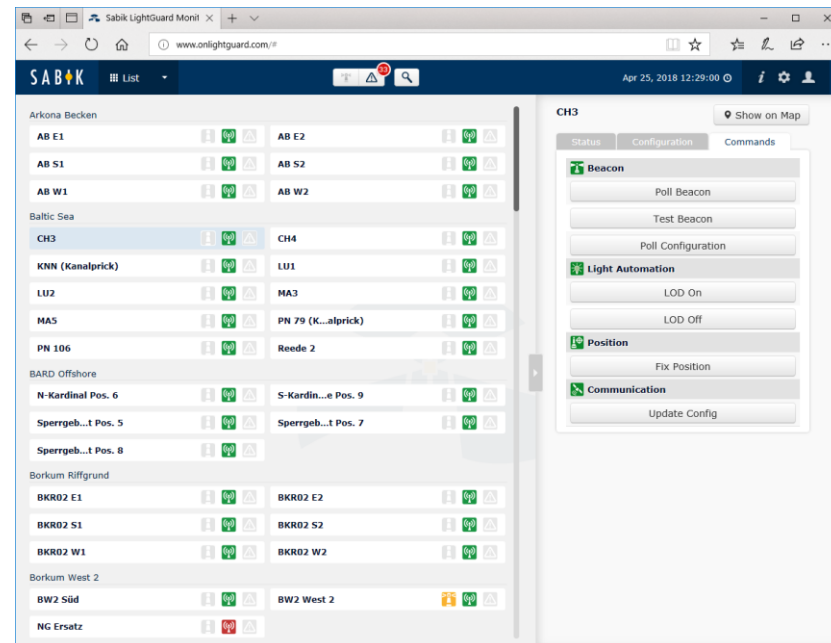
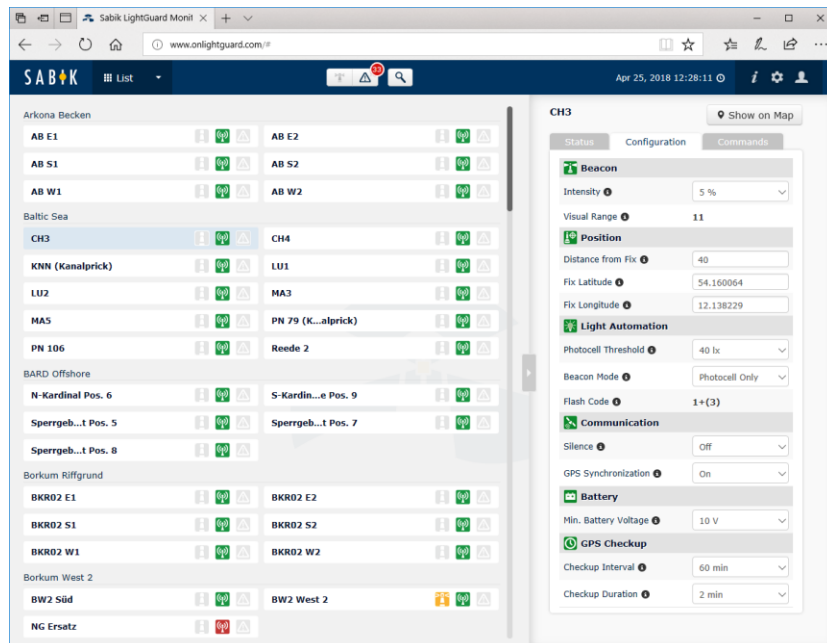
LightGuard Monitor: Authentication

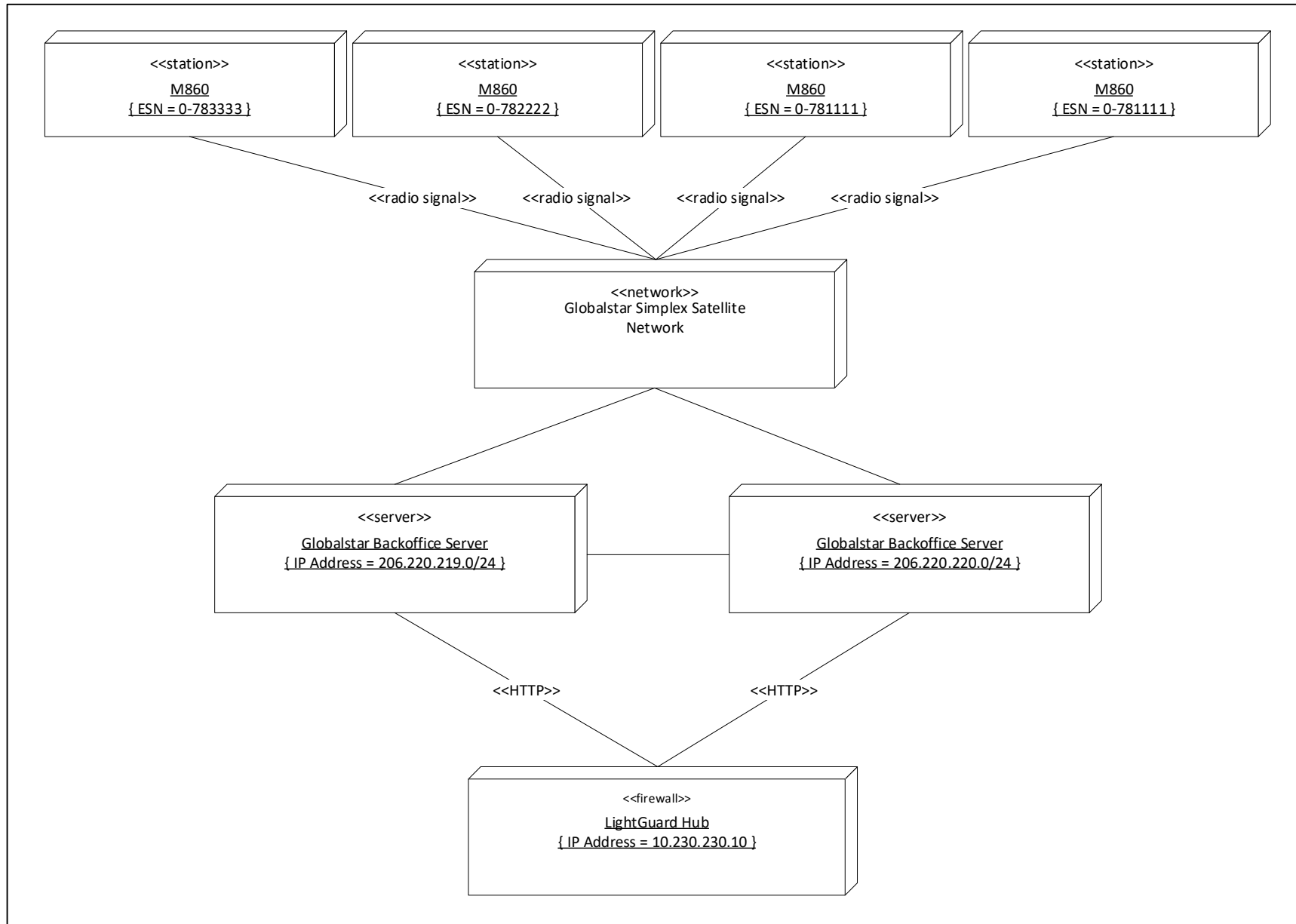
- **Safe Login Procedure**
- **P* =**
SHA256(SHA256(password) +
salt)
- **Optional: SSL Encryption**



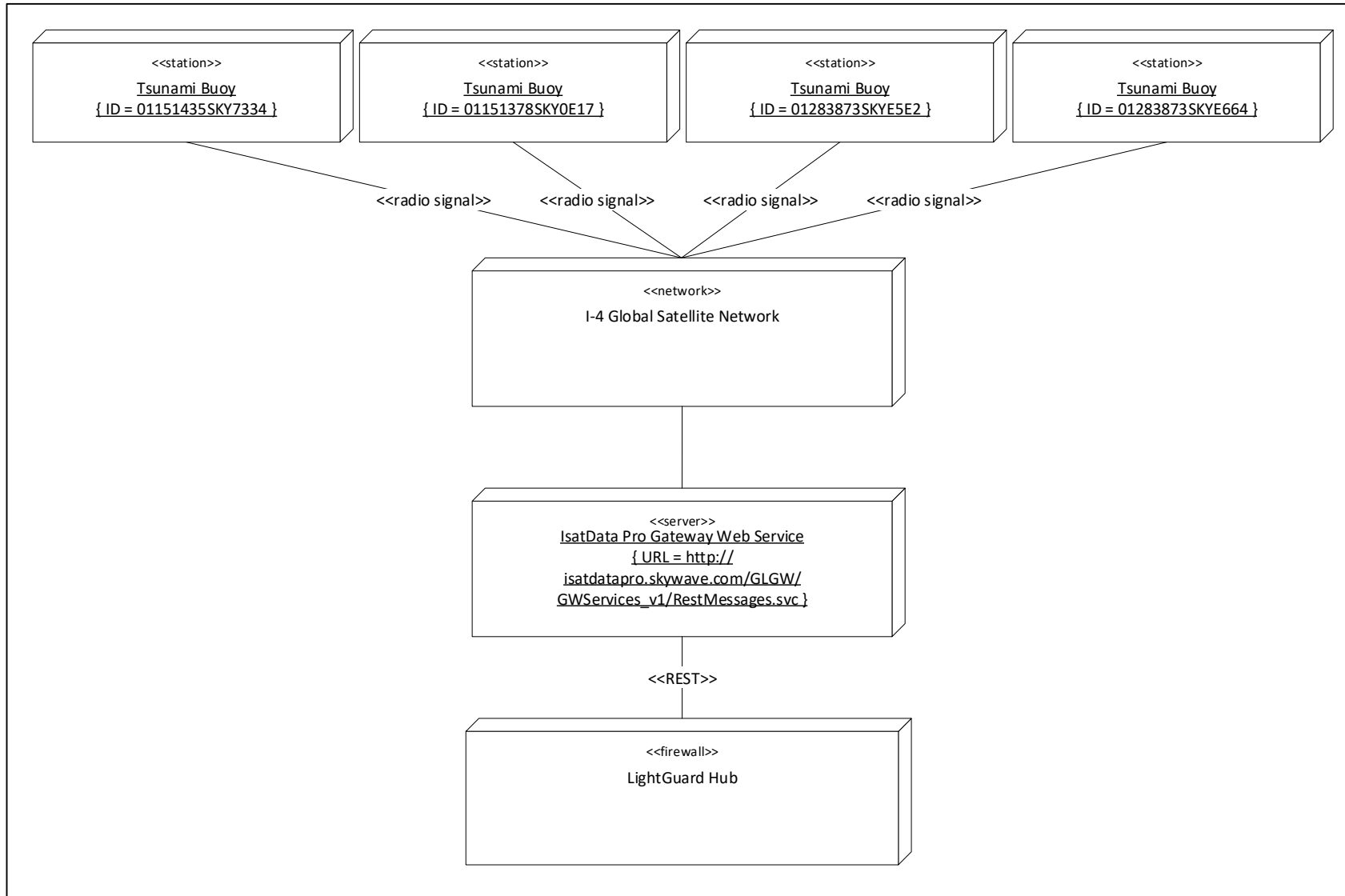
LightGuard Monitor: Push, Poll, Command

- commands trigger a push
- configuration changes trigger a push
- stations wake up on reception of push notifications
- stations contact the server after woken up



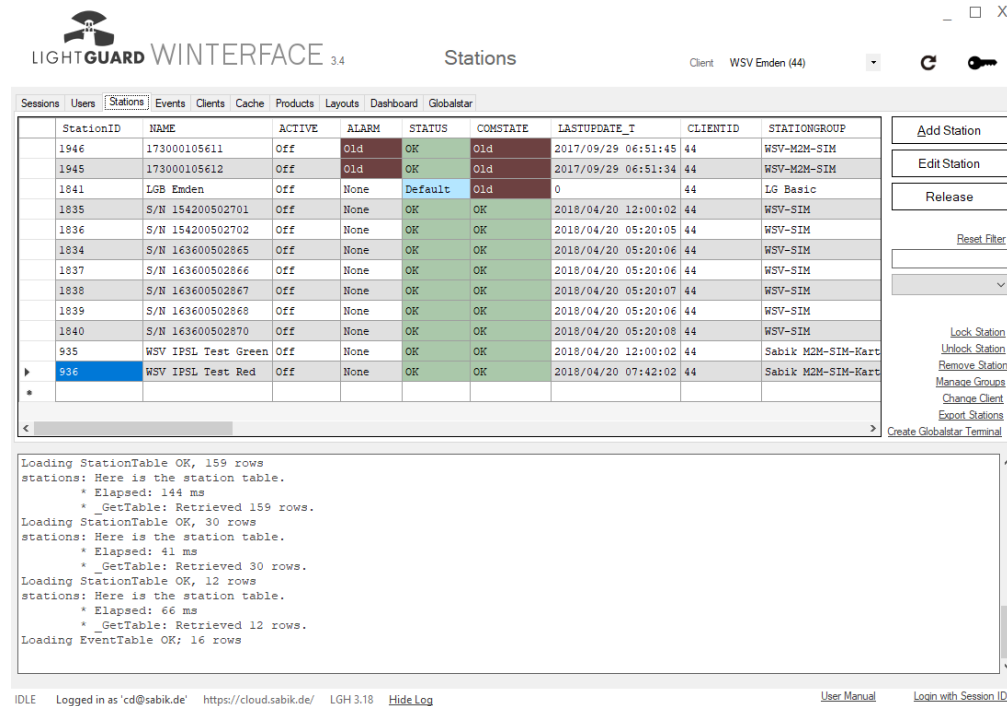


LightGuard Monitor: Inmarsat



LightGuard Monitor: Station

- stations in cellular networks are unique by its IMSI
- stations in Globalstar telemetry network are unique by its ESN
- stations in Inmarsat satellite network are unique by its mobile ID



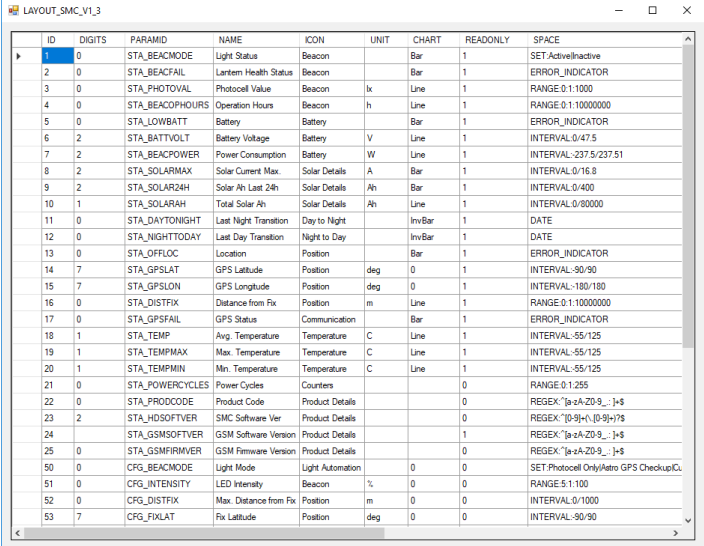
The screenshot shows the 'Stations' tab in the LightGuard WINTERFACE 3.4 application. The interface includes a top navigation bar with tabs for Sessions, Users, Stations, Events, Clients, Cache, Products, Layouts, Dashboard, and Globalstar. The 'Stations' tab is active, displaying a table of station data. The table has columns for StationID, NAME, ACTIVE, ALARM, STATUS, COMSTATE, LASTUPDATE_T, CLIENTID, and STATIONGROUP. The table contains 15 rows of data, with the last row (StationID 936) highlighted in blue. To the right of the table, there are buttons for 'Add Station', 'Edit Station', and 'Release', along with a 'Reset Filter' button and a dropdown menu. Below the table, there is a 'Create Globalstar Terminal' button. At the bottom of the interface, there is a log window showing the following text:

```
Loading StationTable OK; 159 rows
stations: Here is the station table.
* Elapsed: 144 ms
* _GetTable: Retrieved 159 rows.
Loading StationTable OK; 30 rows
stations: Here is the station table.
* Elapsed: 41 ms
* _GetTable: Retrieved 30 rows.
Loading StationTable OK; 12 rows
stations: Here is the station table.
* Elapsed: 66 ms
* _GetTable: Retrieved 12 rows.
Loading EventTable OK; 16 rows
```

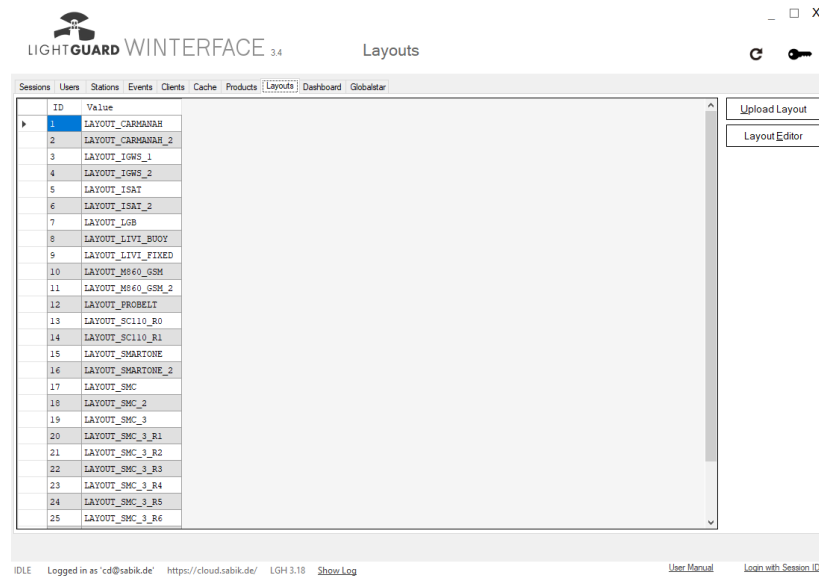
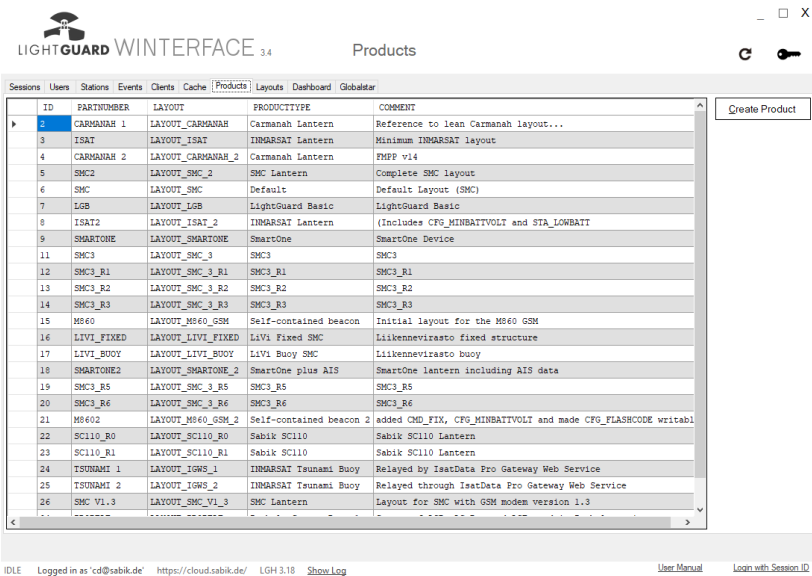
The bottom status bar shows the user is logged in as 'cd@sabik.de' at 'https://cloud.sabik.de/' using 'LGH 3.18'. There are links for 'User Manual' and 'Login with Session ID'.

LightGuard Monitor: Station Data & Layout

- set of station data is static
- layout is a subset of station data
- product types are generated from layouts
- first, create the layout
- afterwards, create a new product type
- finally, create new stations

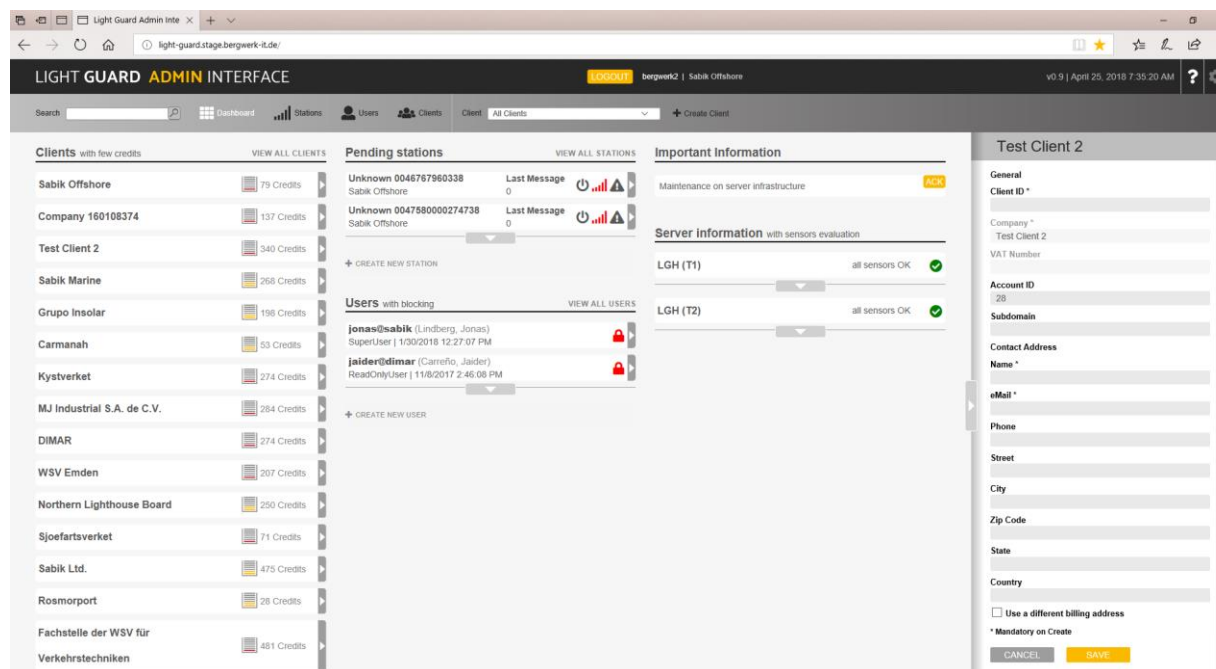


ID	DIGITS	PARAMID	NAME	ICON	UNIT	CHART	READONLY	SPACE
1	0	STA_BEACMODE	Light Status	Beacon		Bar	1	SET.ActiveInactive
2	0	STA_BEACFAIL	Lantern Health Status	Beacon		Bar	1	ERROR_INDICATOR
3	0	STA_PHOTOVAL	Protocol Value	Beacon	lx	Line	1	RANGE 0:1:1000
4	0	STA_BEACPHOURS	Operation Hours	Beacon	h	Line	1	RANGE 0:1:10000000
5	0	STA_LOWBATT	Battery	Battery		Bar	1	ERROR_INDICATOR
6	2	STA_BATTVOLT	Battery Voltage	Battery	V	Line	1	INTERVAL:0/47.5
7	2	STA_BEACPOWER	Power Consumption	Battery	W	Line	1	INTERVAL:237.5/237.51
8	2	STA_SOLARMAX	Solar Current Max.	Solar Details	A	Bar	1	INTERVAL:0/16.8
9	2	STA_SOLAR24H	Solar Ah Last 24h	Solar Details	Ah	Bar	1	INTERVAL:0/400
10	1	STA_SOLARAH	Total Solar Ah	Solar Details	Ah	Line	1	INTERVAL:0/20000
11	0	STA_DAYTONIGHT	Last Night Transition	Day to Night		InvBar	1	DATE
12	0	STA_NIGHTTODAY	Last Day Transition	Night to Day		InvBar	1	DATE
13	0	STA_OFFLOC	Location	Position		Bar	1	ERROR_INDICATOR
14	7	STA_GPSLAT	GPS Latitude	Position	deg	0	1	INTERVAL:-90/90
15	7	STA_GPSLON	GPS Longitude	Position	deg	0	1	INTERVAL:-180/180
16	0	STA_DISTFIX	Distance from Fix	Position	m	Line	1	RANGE 0:1:10000000
17	0	STA_GPSFAIL	GPS Status	Communication		Bar	1	ERROR_INDICATOR
18	1	STA_TEMP	Avg. Temperature	Temperature	C	Line	1	INTERVAL:-55/125
19	1	STA_TEMPMAX	Max. Temperature	Temperature	C	Line	1	INTERVAL:-55/125
20	1	STA_TEMPMIN	Min. Temperature	Temperature	C	Line	1	INTERVAL:-55/125
21	0	STA_POWERCYCLES	Power Cycles	Counters			0	RANGE 0:1:255
22	0	STA_PRODCCODE	Product Code	Product Details			0	REGEX: '[a-zA-Z0-9_-]{4}
23	2	STA_HDSOFTVER	SMC Software Ver	Product Details			0	REGEX: '[0-9]{1}([0-9]{1}){7}
24	0	STA_GSMFIRMVER	GSM Software Version	Product Details			1	REGEX: '[a-zA-Z0-9_-]{4}
25	0	STA_GSMFIRMVER	GSM Firmware Version	Product Details			0	REGEX: '[a-zA-Z0-9_-]{4}
50	0	CFG_BEACMODE	Light Mode	Light Automation		0	0	SET.Photocell Only/Photo GPS Checkup
51	0	CFG_INTENSITY	LED Intensity	Beacon	%	0	0	RANGE 5:1:100
52	0	CFG_DISTFIX	Max. Distance from Fix	Position	m	0	0	INTERVAL:0/1000
53	7	CFG_FIXLAT	Fix Latitude	Position	deg	0	0	INTERVAL:-90/90



LightGuard Monitor: Licensing

- each license comes with a fixed and immutable number of credits
- one credit equals one received Globalstar STU message
- licenses can expire, but only if they're not completely used up before expiration



SABIK OFFSHORE



LightGuard Monitor: User Ranks

- Read-Only User
- Read-Write User
- Station
- Gateway
- Super-User
- LightGuard Backend
- Admin

LIGHTGUARD WINTERFACE 3.4 Users Client Carmanah (36)

ID	USERNAME	RANK	FORCEOTP	ACTIVE	LASTLOGIN_T	GROUPS
1118	900	Station	0	1	2015/05/21 08:41:57	
1119	901	Station	0	1	2017/03/14 17:29:35	
2553	acorno@carmanah.com	ReadWriteUser	0	1	2017/04/18 17:23:52	Carmanah Test
2000	acruz.sbg1@infraero.gov.br	ReadOnlyUser	0	1	2016/02/11 09:51:41	Intergroup-INFRAERO
3588	admin@carmanah.com	Admin	0	1	2018/03/20 17:57:56	ACP AXYS Technologies Aen
3655	AENA-Ibiza	ReadWriteUser	0	1	2018/04/21 10:47:27	Aena - GSME
3298	akeller@carmanah.com	SuperUser	0	1	2017/11/03 18:20:59	
1983	alejandrodieduruquay.com	ReadWriteUser	0	1	2018/04/20 19:19:11	DLED LGT SERBA
1998	Alexander.azevedo@gogpar.com.br	ReadOnlyUser	0	1	2016/01/29 21:42:29	Intergroup-OSX
2623	alockwood@carmanah.com	ReadWriteUser	0	1	2017/07/31 18:53:54	Carmanah Test
2464	amdominguez@pancanal.com	ReadOnlyUser	0	1	0	ACP
3070	AnHerrera@pancanal.com	ReadWriteUser	0	1	2017/07/24 14:56:13	ACP
2733	ASolver	ReadOnlyUser	0	1	2017/02/08 11:50:28	LGT
1971	azelenbaba@carmanah.com	SuperUser	0	1	2018/04/05 18:39:35	Carmanah Test Go Deep Gro
2002	bavieira.cnrj@infraero.gov.br	ReadOnlyUser	0	1	2018/04/16 13:15:20	Intergroup-INFRAERO
2596	bjolie@carmanah.com	SuperUser	0	1	2016/11/24 21:10:47	Carmanah Test
1842	bsterzenbach@carmanah.com	ReadWriteUser	0	1	2018/04/20 20:52:01	Carmanah Test Project Fra
2721	C.Sassanelli@sartelco.it	ReadOnlyUser	0	1	2017/02/09 09:01:10	Aena Carmanah Test
2468	cawest@pancanal.com	ReadWriteUser	0	1	0	ACP
2050	cd@carmanah	SuperUser	0	1	2018/04/01 10:46:46	Carmanah Test
1997	Celso.mello@gogpar.com.br	ReadOnlyUser	0	1	2016/01/29 21:42:10	Intergroup-OSX
2471	cmiller@pancanal.com	ReadWriteUser	0	1	0	ACP
3083	CNSJ	ReadWriteUser	0	1	2017/07/27 17:41:41	
2725	customerservice@carmanah.com	ReadWriteUser	0	1	2017/07/24 20:35:59	

[Create User](#)
[Edit User](#)
[Reset Filter](#)
[Remove User](#)

IDLE Logged in as 'cd@sabik.de' https://cloud.sabik.de/ LGH 3.18 Show Log User Manual Login with Session ID

The screenshot shows the 'LIGHT GUARD ADMIN INTERFACE' web application. The browser's address bar displays 'light-guard-stage.bergwerk-t.de'. The interface has a top navigation bar with a search input, user profile icon, and date/time 'v0.9 | April 22, 2018 8:04:32 PM'. Below this is a main menu with tabs: Dashboard, Stations, Users, Clients, and Client. The 'Clients' tab is active, showing a list of clients under the heading 'Clients with low credits'. Two clients are listed: 'Sabik Offshore' with 213 Credits and 'Bergwerk1' with 0 Credits. A red warning icon is next to 'Bergwerk1'. To the right of the client list is a 'Pending stations' section with two entries, both showing 'Last Message' and a red warning icon. Further right is a 'Import information' section with a yellow warning icon. At the bottom, there is a 'Server information' section for two servers, LGH (T1) and LGH (T2), each showing status (Alive), version (3.18), and sensor counts.

The screenshot shows the SABnzp web interface. At the top, there's a navigation bar with the SABnzp logo, a search bar, and a date/time display (Apr 25, 2018 12:54:52). Below the navigation bar, there's a table of test jobs. The jobs are grouped by category, such as 'Balkic Sea', 'BARK Offshore', 'Borkum Offground', 'Borkum West 2', 'Customer Test', 'Deutsche Bucht', and 'SpecialMarkkbuoy'. Each job entry consists of a name, a status icon (green or red), and a description. The jobs are listed in a grid format, with each row containing a job name, a status icon, and a description.

Job Name	Status	Description
AB E1	Green	AB E2
AB W1	Green	AB W2
CH3	Green	CH4
L02	Green	HA3
FW 106	Green	Baude 2
KNN (Kanalprk5)	Green	L01
HA5	Green	PH 79 (K...prk5)
N-Kardin... Pos. 6	Green	S-Kardin... Pos. 9
Sperrgeb...1 Pos. 8	Green	Sperrgeb...1 Pos. 5
Sperrgeb...1 Pos. 7	Green	Sperrgeb...1 Pos. 2
BK002 E1	Green	BK002 E2
BK002 W1	Green	BK002 W2
BK002 S1	Green	BK002 S2
BW2 Süd	Green	BW2 West 2
NG Ersatz	Red	
LVO Test	Red	
75045	Green	Development
DummyTest	Red	LGB Dev
LGB Testbed 1G	Green	LGB Test
LGB Testbed	Red	M2M Dev VDF
45666 Dev	Red	SMC V1.3 Test
Terma Test	Red	

[illegible]

Vodafone.de 15:06 88 %

Groups WSV-SIM

S/N 154200502701
13.5 V
 19:34 7:13

Today | 14:00

S/N 154200502702
13.5 V
 19:34 7:13

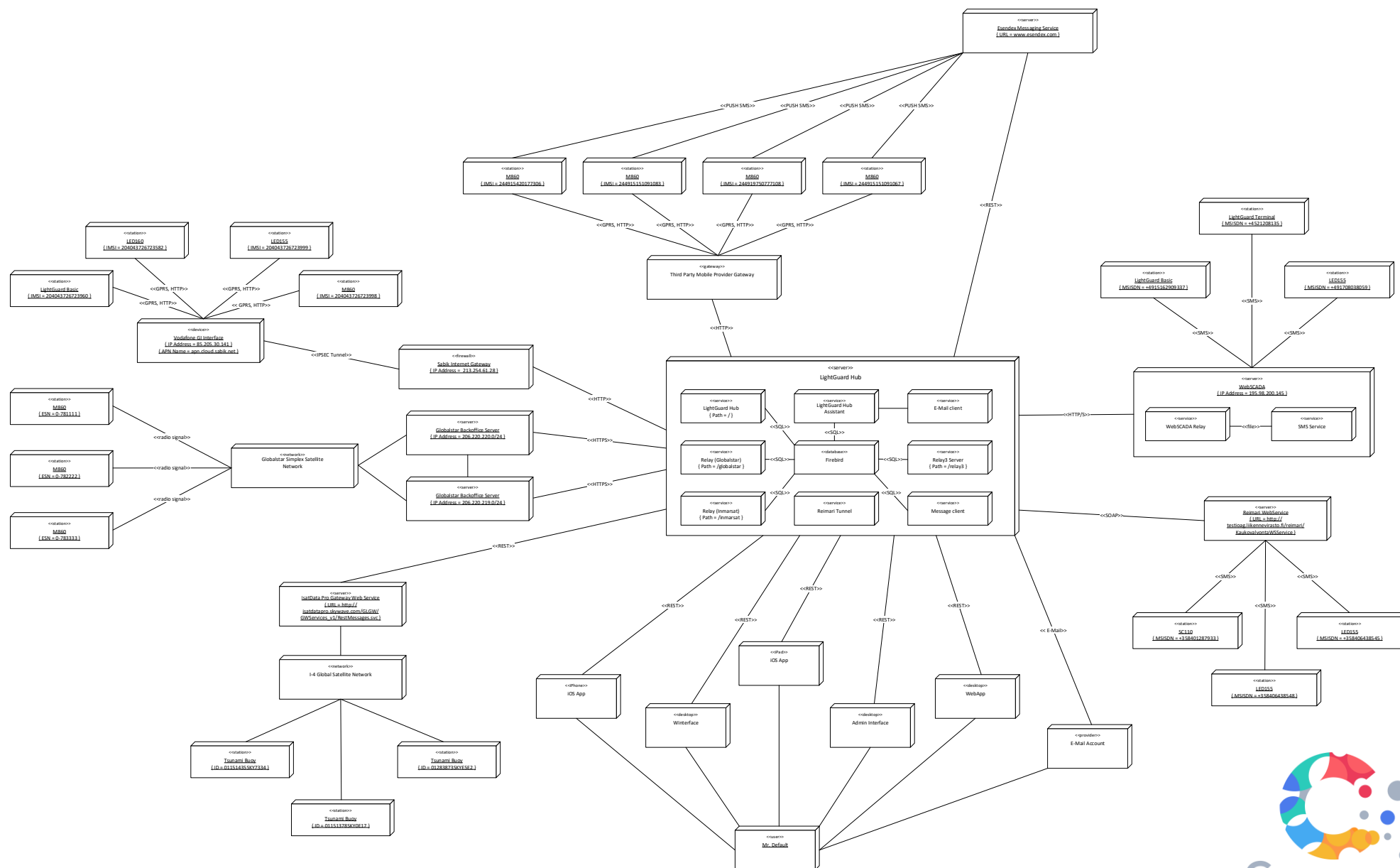
Today | 07:20

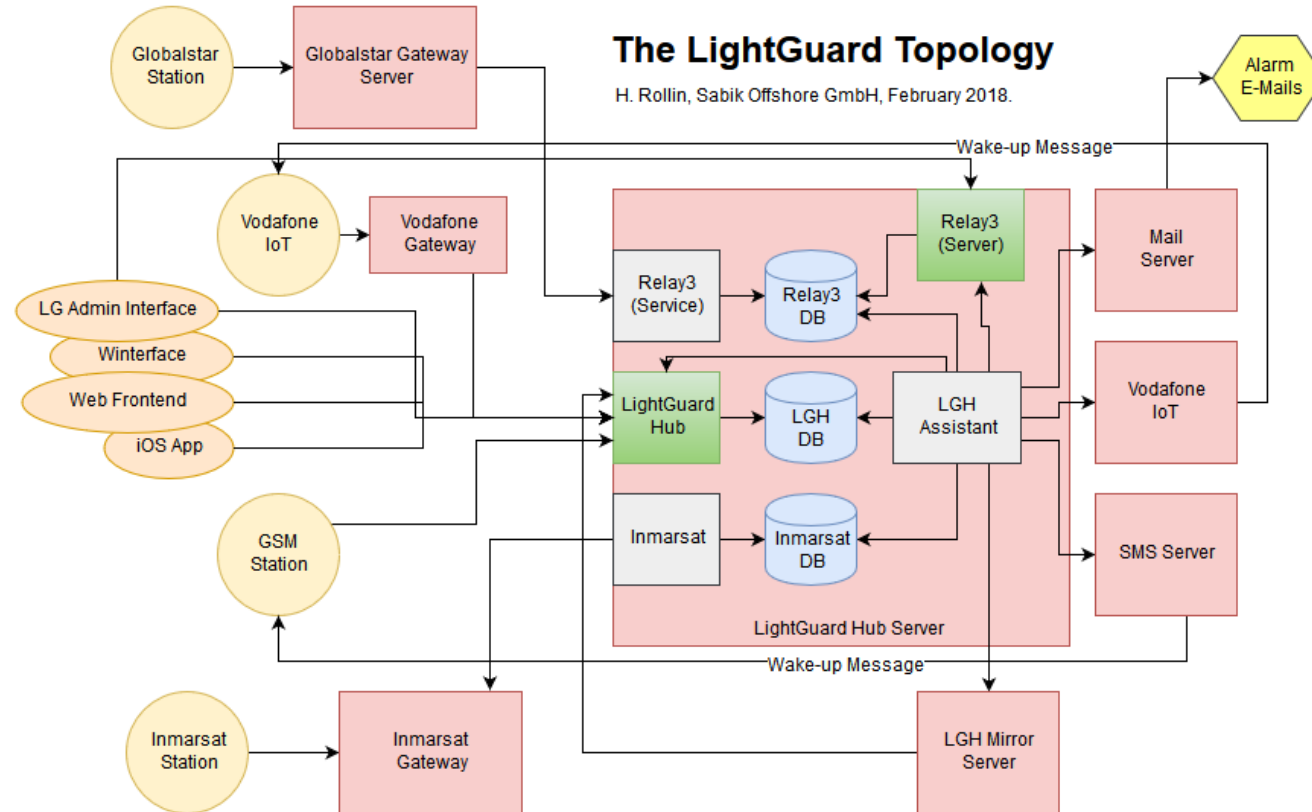
S/N 163600502865
13.4 V
 19:34 7:13

Today | 07:20

S/N 163600502866
13.5 V
 19:34 7:13

Today | 07:20





Legend:

Generic Station
(Buoy etc.)

Physical Server

Client Application

Database

Windows Service

Web API