



ICON Signals Technical Overview

date	min. ver.	desc
25 Jun 2021	2.38	Initial release

Table of Contents

ICON Signals Technical Overview	1
1.0 Introduction	5
1.1 Organization of this Document.....	7
1.2 Platform Details	7
1.3 Components.....	8
1.4 Home Page	9
2.0 Admin Top-level Menu	10
2.1 Admin > System Status	10
2.2 Admin > System Status > Sensor Events	12
2.3 Admin > System Status > Signal Events	13
2.4 Admin > System Status > Log View	15
2.5 Admin > System Status > Version Info	16
2.6 Admin > System Status > Admin Audit Log	16
2.7 Admin > Configuration.....	17
2.8 Admin > Configuration > Licensing	19
2.9 Admin > Configuration > Logins.....	19
2.10 Admin > Configuration > Database.....	22
2.11 Admin > Configuration > Email	23
2.12 Admin > Configuration > Network Settings	25
2.13 Admin > Configuration > Environment.....	26
2.14 Admin > Configuration > ICApps	27
2.15 Admin > Configuration > SNMP Config	28
2.16 Admin > Configuration > Overwatch Config	29
2.17 Admin > Configuration > Data Transfer	30
2.18 Admin > Configuration > Inteliquent.....	31
2.19 Admin > Log View	32
2.20 Admin > Event View	33

3.0 PBX Top-level Menu	36
3.1 PBX > PBX Systems.....	36
3.2 PBX > Alcatel OXO/OXE	38
3.3 PBX > Alcatel OXO/OXE > Monitored Stations.....	39
3.3 PBX > Alcatel OXO/OXE > CSTA Msgs	40
3.4 PBX > Alcatel OXO/OXE > Call Descr	42
3.5 PBX > Alcatel Rainbow.....	43
3.6 PBX > Alcatel Rainbow > Rainbow Commands	44
3.7 PBX > Alcatel Rainbow > Rainbow Bubbles	45
3.8 PBX > ICON Voice Call	45
3.9 PBX > ICON Voice Call > Voice Callout Recordings.....	46
4.0 Notification Toplevel Menu	48
4.1 Notification > People	48
4.2 Notification > Groups.....	51
4.3 Notification > Locations.....	52
4.4 Notification > Locations > Zones.....	53
4.5 Notification > Send Mass Text	55
5.0 Workflow Toplevel Menu	61
5.1 Workflow > Sensor Grid	62
5.2 Workflow > Sensor Types.....	72
5.3 Workflow > Sensor Grid > Sensor Control	74
5.4 Workflow > Sensor Grid > Sensor Aliases	75
5.5 Workflow > Sensor Grid > Cameras	78
5.6 Workflow > Sensor Grid > Relays	79
5.7 Workflow > Sensor Types > Sensor Gateways	80
5.8 Workflow > Rule List	81
5.8.1 Rule Dialog: Main tab.....	85
5.8.2 Rule Dialog: SMS, Email and Rainbow tabs.....	89
5.8.3 Rule Dialog: Voice tab	91
5.8.4 Rule Dialog: Actions tab	93
5.8.5 Rule Dialog: Feedback tab.....	95
5.8.6 Rule Dialog: Advanced tab	96
5.9 Workflow > Rule List > Scripts.....	97

Signals Technical Overview

5.10 *Workflow > Integrations* 99

5.11 *Workflow > Integrations > Intgr Names* 101

6.0 Signals Technical Notes **102**

1.0 Introduction

ICON Signals is a software system which interprets sensor and phone system event data and executes actions.

Within ICON Signals, a *signal* is an event which can trigger a programmable *action*.

Examples of *signals* are:

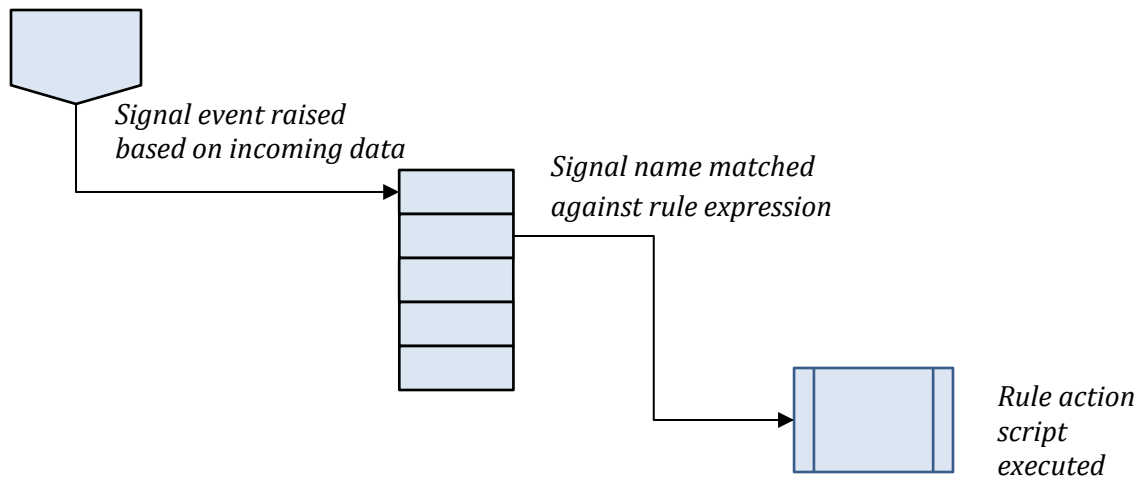
- an *E911* call made from a phone system station
- a campus lockdown event
- an alert event generated from a wireless sensor
- an alert event generated from a dry contact closure
- an incoming call to a specific, monitored phone extension
- an outgoing call from a specific, monitored phone extension

When certain signal events occur, customers want actions to be taken. Examples of desired *actions* are:

- sending alert information to one or more recipients via email, SMS, or automated voice calls
- initiating alert message broadcasts to paging speakers
- turning on strobe lights
- handling acknowledgements to SMS messages or automated phone calls

The challenge we face is how to map interesting signal events to possible desired actions. We can provide configuration options for fundamental scenarios, but in our experience customers often want something different from what was anticipated. We can solve such problems with custom programming, but that often involves considerable time and prohibitive expense.

ICON Signals addresses this challenge by moving the programming of actions into the application itself. When a signal event is detected, the system searches a list of rules and executes an associated action script if a matching rule is found.



The action script runs within a Javascript interpreter and contains auto-generated code to perform basic tasks such as sending texts and automated voice calls. Smaller hand-crafted code “snippets” can be included to perform tasks unique to the customer's requirements. Examples include turning relays on/off or sending alerts to third-party systems using proprietary APIs.

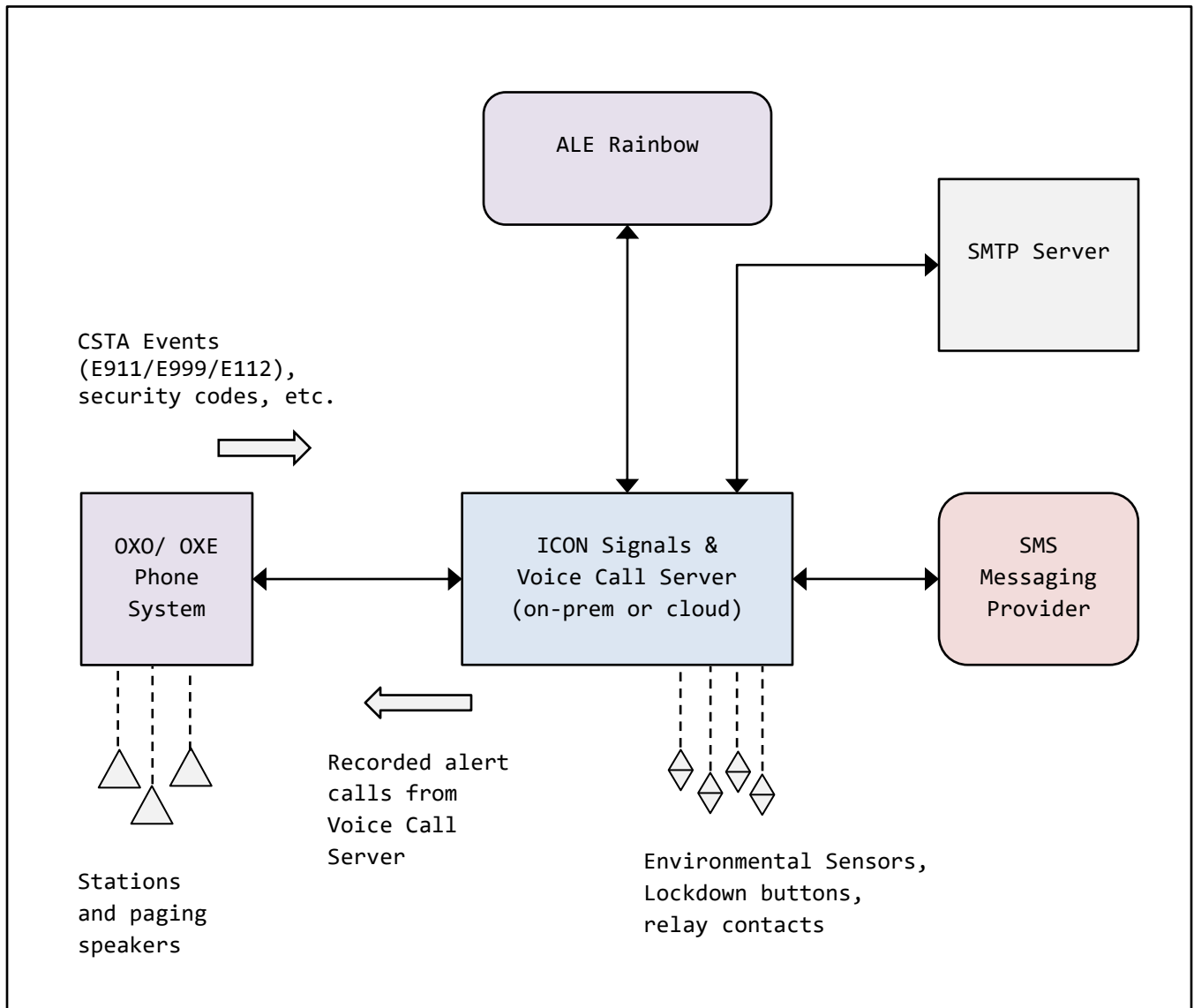
1.1 Organization of this Document

Section 1 of this technical overview describes the components and platform details of ICON Signals. Sections 2 through 5 cover the Signals UI. Remaining sections provide further details on frequently-used hardware and scenarios.

1.2 Platform Details

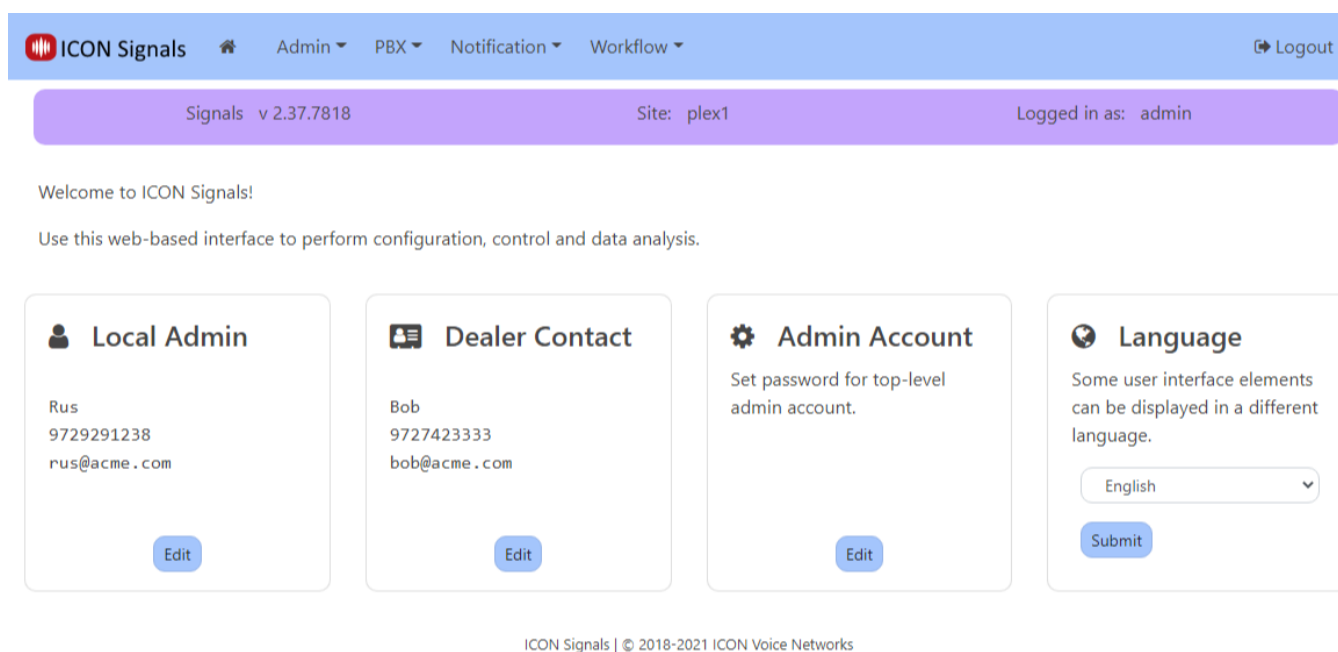
item	info
<i>OS</i>	Debian
<i>Memory</i>	4GB (2GB for smaller installations)
<i>Disk Footprint</i>	~9GB
<i>Disk Partition Recommendations</i>	500GB physical, 32GB VM
<i>Protocols</i>	HTTP, HTTPS, SIP, OXO/OXE CSTA, TCP/UDP (data from various sensors)
<i>Major Components</i>	ICON Signals application, ICON Voice Call Server (Asterisk)

1.3 Components



1.4 Home Page

The ICON Signals web-based UI has a header with a home page icon, four drop-down menus and a Login/Logout link.



The home page contains optional contact information boxes as well as configuration settings to change the admin password used within the UI and the language displayed within the UI.

Data displayed within the Signals UI is in English. Many fields and descriptive labels may be displayed in French, German or Spanish, but is intended as an aid to a non-native English speaker rather than a comprehensive translation.

2.0 Admin Top-level Menu

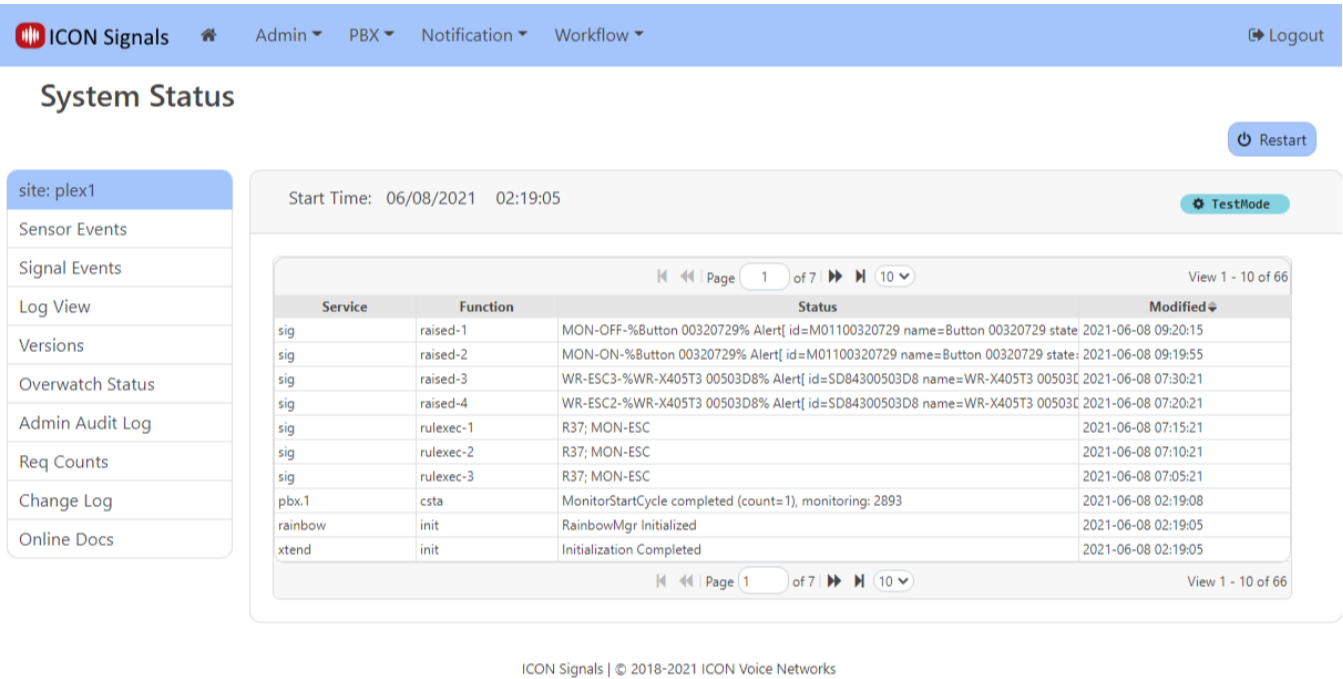
The Admin menu contains items:

- System Status
- Configuration
- Log View
- Event View

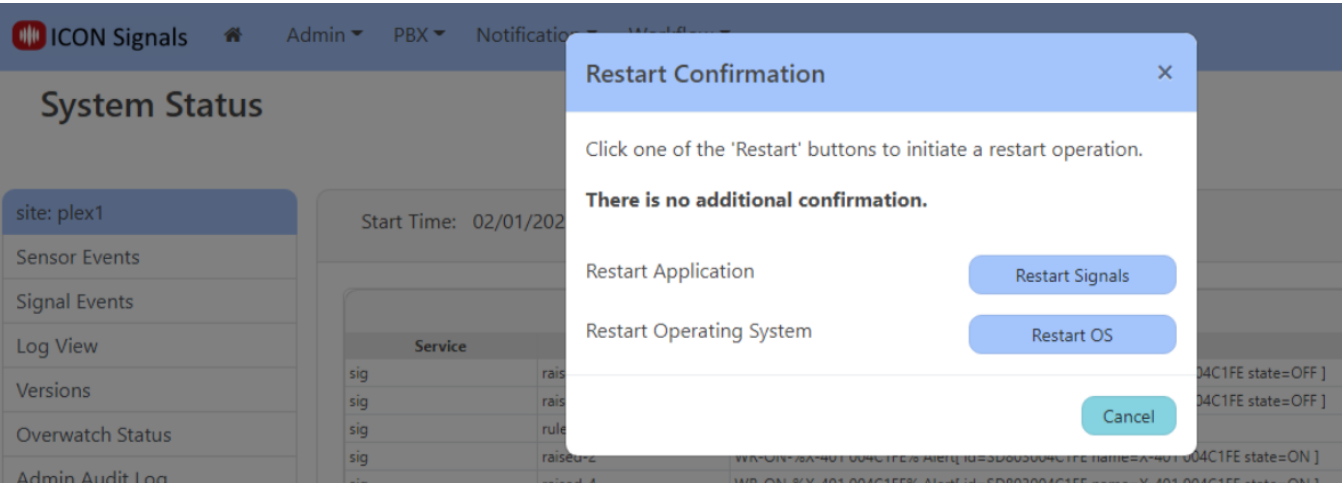
Admin > System Status and Admin > Configuration lead to additional status and configuration pages. The Admin > Log View page is an interface used to view the contents of various log files. Admin > Event View leads to various event data grids.

2.1 Admin > System Status

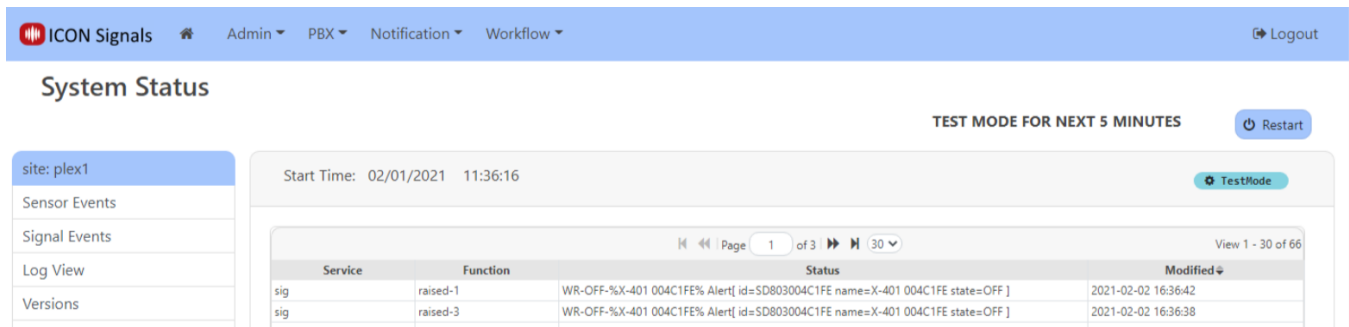
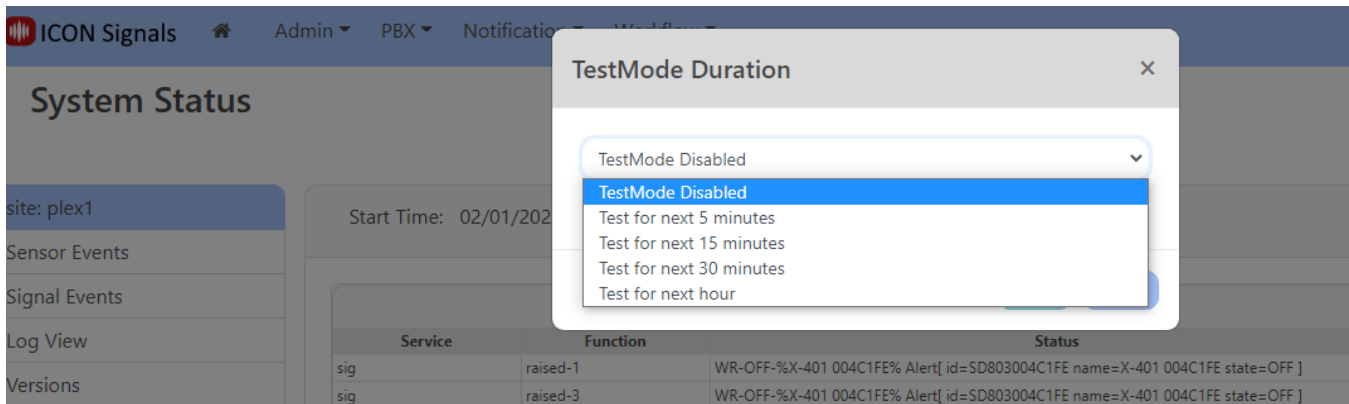
The System Status page shows initialization information about various components within ICON Signals and has Restart and TestMode buttons in the upper right area.



The Restart button displays a confirmation dialog allowing the admin user to either restart the ICON Signals application or the entire operating system.



The TestMode button allows the admin user to temporarily set an internal “test mode” flag within ICON Signals.



As we will see in section 5, rules can be set to be *bypassed* in test mode. An example use of this feature would be to avoid notifying people during early testing of an alarm button. The main notification rule could be bypassed and a fall-thru rule which only notifies the technician testing the alarm button could be executed instead.

2.2 Admin > System Status > Sensor Events

The Sensor Events page shows event data received from various sensor devices. The Workflow > Sensor Grid page can be considered a “processed” event view page and is typically more useful.

Admin ▾
PBX ▾
Notification ▾
Workflow ▾
Logout

Sensor Events

data received from sensor devices

plex1

[Sensor Grid](#)
[Configuration](#)
[System Status](#)
[Change Log](#)
[Online Docs](#)

Q

[SETTINGS](#)

Time↕	DevID	Name	Atr	Cfm	LwB	Mis	EC	AlrSt	Val1	Val2
2021-01-25 17:36:00	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-01-25 17:33:00	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-01-25 17:30:00	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-01-25 17:27:00	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-01-25 17:24:52	M00200320722	Temp 00320722	0	0	0	0	0	00000000	22.60	0.00
2021-01-25 17:24:00	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-01-25 17:21:00	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-01-25 17:19:08	M01100320729	Button 00320729	0	1	0	0	0	00000000	0.00	0.00
2021-01-25 17:18:00	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-01-25 17:15:00	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00

Page 1 of 4,367

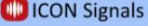
View 1 - 10 of 43,663

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2.3 Admin > System Status > Signal Events

The Signal Events page displays basic information about the signals that are raised by the ICON Signals application. *RuleNo* shows the number of the rule in the rules list which was executed. Note that this value can be misleading since it is simply the position of the rule in the list and the list can change. A value of 0 indicates that no match was found and consequently no rule was executed.

Signals Technical Overview

 Admin ▾ PBX ▾ Notification ▾ Workflow ▾ [Logout](#)

Signal Events

plex1

- Sensor Grid
- Configuration
- System Status
- Change Log
- Online Docs

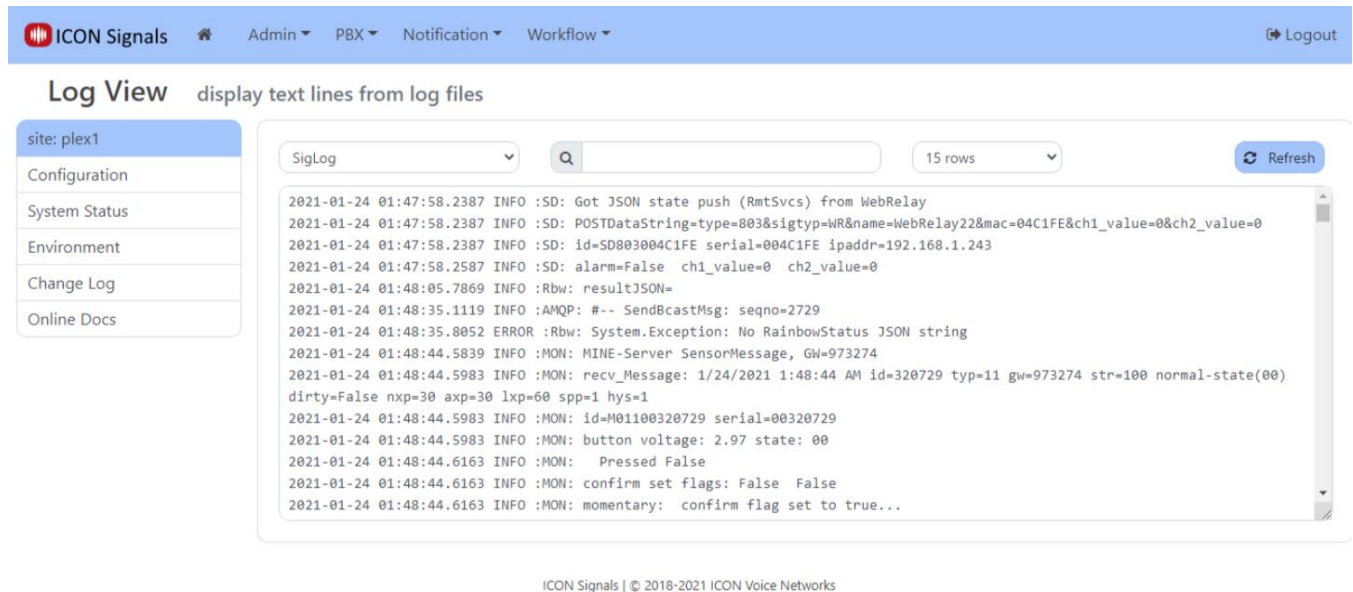
[SETTINGS](#)

ID#	Time	Signal Name	RuleNo	Rule Expr	State	Category
4449	2021-01-19 15:41:22	XTC-MISSING-%Svr Demo Site%	4	XTC-MISSING	OFF	ALERT
4448	2021-01-19 15:41:22	XTC-MISSING-%Svr Demo Site%	4	XTC-MISSING	OFF	ALERT
4447	2021-01-19 14:35:57	XTC-OFF-CH2-%Pnd Rm 1%	1	XTC-(ON OFF)-CH2	OFF	ALERT
4446	2021-01-19 14:35:57	XTC-OFF-%Pnd Rm 1%	0		OFF	
4445	2021-01-19 14:35:40	XTC-ON-CH2-%Pnd Rm 1%	1	XTC-(ON OFF)-CH2	ON	ALERT
4444	2021-01-19 14:35:39	XTC-ON-%Pnd Rm 1%	0		ON	
4443	2021-01-19 14:35:39	XTC-FOUND-%Svr Demo Site%	5	XTC-FOUND	OFF	ALERT
4442	2021-01-19 11:42:41	XTC-MISSING-%Svr Demo Site%	4	XTC-MISSING	OFF	ALERT
4441	2021-01-19 11:21:07	XTC-FOUND-%Svr Demo Site%	5	XTC-FOUND	OFF	ALERT
4440	2021-01-19 10:57:17	XTC-MISSING-%Svr Another Site%	4	XTC-MISSING	OFF	ALERT
4439	2021-01-19 10:57:17	XTC-MISSING-%Svr Demo Site%	4	XTC-MISSING	OFF	ALERT
4438	2021-01-18 17:25:14	XTC-MISSING-%Svr Demo Site%	4	XTC-MISSING	OFF	ALERT
4437	2021-01-18 16:59:21	XTC-OFF-CH3-%Pnd Rm 1%	2	XTC-(ON OFF)-CH3	OFF	ALERT
4436	2021-01-18 16:59:21	XTC-OFF-%Pnd Rm 1%	0		OFF	
4435	2021-01-18 16:59:10	XTC-OFF-CH14-%Call 203580111 Pt%	3	XTC-(ON OFF)-CH	OFF	ALERT
4434	2021-01-18 16:59:10	XTC-OFF-%Call 203580111 Pt%	0		OFF	
4433	2021-01-18 16:59:09	XTC-FOUND-%Svr Demo Site%	5	XTC-FOUND	OFF	ALERT
4432	2021-01-18 16:15:11	XTC-MISSING-%Svr Demo Site%	4	XTC-MISSING	OFF	ALERT
4431	2021-01-18 15:53:39	XTC-ON-CH14-%Call 203580111 Pt%	3	XTC-(ON OFF)-CH	ON	ALERT
4430	2021-01-18 15:53:39	XTC-ON-%Call 203580111 Pt%	0		ON	

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2.4 Admin > System Status > Log View

The 'Log View' page allows convenient viewing of recent application log files generated by Signals. It does not currently support viewing all existing log file data on the Signals system, so terminal access is required in those cases.

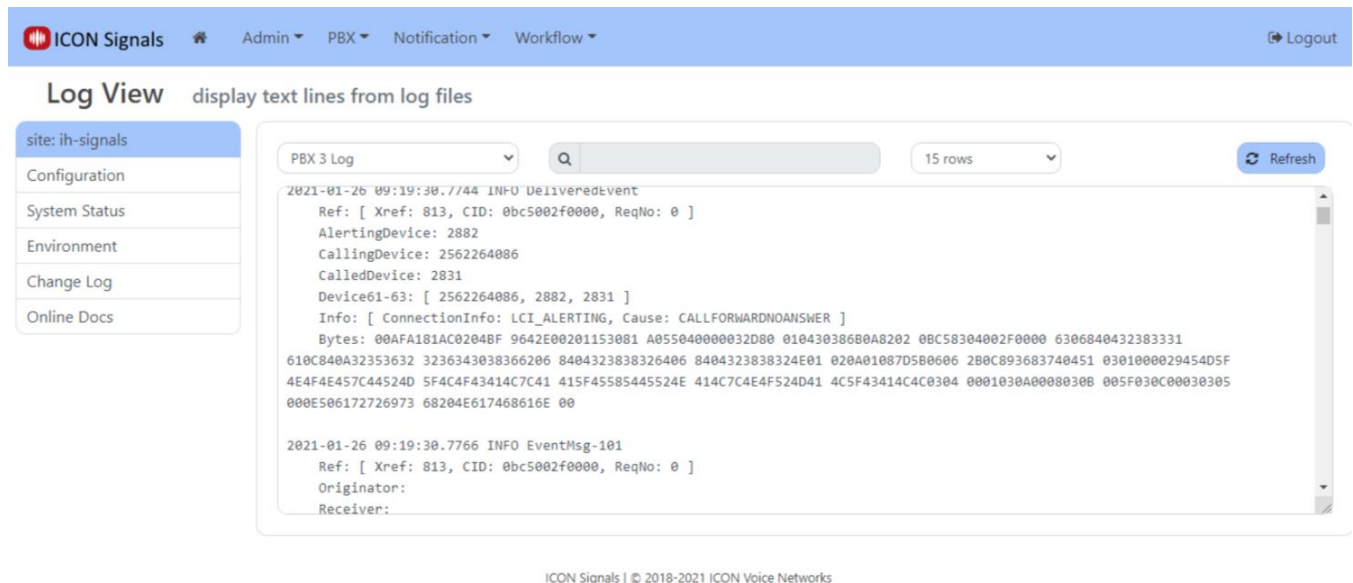


The screenshot shows the 'Log View' interface for site 'plex1'. The left sidebar contains a menu with 'Configuration', 'System Status', 'Environment', 'Change Log', and 'Online Docs'. The main area displays a list of log entries for 'SigLog'. The log entries are as follows:

```

2021-01-24 01:47:58.2387 INFO :SD: Got JSON state push (RmtSvcs) from WebRelay
2021-01-24 01:47:58.2387 INFO :SD: POSTDataString=type=803&sigtyp=WR&name=WebRelay22&mac=04C1FE&ch1_value=0&ch2_value=0
2021-01-24 01:47:58.2387 INFO :SD: id=SD803004C1FE serial=004C1FE ipaddr=192.168.1.243
2021-01-24 01:47:58.2587 INFO :SD: alarm=False ch1_value=0 ch2_value=0
2021-01-24 01:48:05.7869 INFO :Rbw: resultJSON=
2021-01-24 01:48:35.1119 INFO :AMQP: #-- SendBcastMsg: seqno=2729
2021-01-24 01:48:35.8052 ERROR :Rbw: System.Exception: No RainbowStatus JSON string
2021-01-24 01:48:44.5839 INFO :MON: MINE-Server SensorMessage, GW=973274
2021-01-24 01:48:44.5983 INFO :MON: recv_Message: 1/24/2021 1:48:44 AM id=320729 typ=11 gw=973274 str=100 normal-state(00)
dirty=False npx=30 axp=30 lxp=60 spp=1 hys=1
2021-01-24 01:48:44.5983 INFO :MON: id=M01100320729 serial=00320729
2021-01-24 01:48:44.5983 INFO :MON: button voltage: 2.97 state: 00
2021-01-24 01:48:44.6163 INFO :MON: Pressed False
2021-01-24 01:48:44.6163 INFO :MON: confirm set flags: False False
2021-01-24 01:48:44.6163 INFO :MON: momentary: confirm flag set to true...
  
```

At the bottom of the page, it says 'ICON Signals | © 2018-2021 ICON Voice Networks'.



The screenshot shows the 'Log View' interface for site 'ih-signals'. The left sidebar contains a menu with 'Configuration', 'System Status', 'Environment', 'Change Log', and 'Online Docs'. The main area displays a list of log entries for 'PBX 3 Log'. The log entries are as follows:

```

2021-01-26 09:19:30.7744 INFO DeliveredEvent
Ref: [ Xref: 813, CID: 0bc5002f0000, ReqNo: 0 ]
AlertingDevice: 2882
CallingDevice: 2562264086
CalledDevice: 2831
Device61-63: [ 2562264086, 2882, 2831 ]
Info: [ ConnectionInfo: LCI_ALERTING, Cause: CALLFORWARDNOANSWER ]
Bytes: 00AFA181AC0204BF 9642E0201153081 A055040000032D80 010430386B0A8202 0BC58304002F0000 6306840432383331
610C840A32353632 3236343038366206 8404323838326406 8404323838324E01 020A01087D5B0606 2B0C893683740451 030100002945405F
4E4F4E457C44524D 5F4C4F43414C7C41 415F45585445524E 414C7C4E4F524D41 4C5F43414C4C0304 0001030A0008030B 005F030C00030305
000E506172726973 68204E617468616E 00

2021-01-26 09:19:30.7766 INFO EventMsg-101
Ref: [ Xref: 813, CID: 0bc5002f0000, ReqNo: 0 ]
Originator:
Receiver:
  
```

At the bottom of the page, it says 'ICON Signals | © 2018-2021 ICON Voice Networks'.

2.5 Admin > System Status > Version Info

This page displays version information for various software frameworks and tools used in ICON Signals.

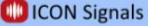
 **ICON Signals**  Admin ▾  PBX ▾  Notification ▾  Workflow ▾  Logout

Version Info

plex1	Signals: v 2.30.7695
Configuration	OS: Windows
System Status	Node.js v14.15.3
Change Log	PHP 7.3.9
Online Docs	jQuery 3.3.1
	Vue 2.5.16

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2.6 Admin > System Status > Admin Audit Log

 Admin ▾ PBX ▾ Notification ▾ Workflow ▾ [Logout](#)

Admin Audit Log

 recent administrative actions performed

plex1

Sensor Grid

Configuration

System Status

Change Log

Online Docs

Q




View 1 - 10 of 109				
Time	Type	User	Name	Info
2021-01-26 10:28:12	login	admin		
2021-01-26 10:28:10	logout	admin		
2021-01-25 17:33:40	login	admin		
2021-01-25 17:33:37	logout	admin		
2021-01-19 15:07:49	intgr-data-updated	admin	xtend-name-regex	
2021-01-19 15:06:32	intgr-data-updated	admin	xtend-name-regex	
2021-01-19 14:49:30	intgr-data-updated	admin	xtend-name-regex	
2021-01-19 11:23:15	intgr-data-deleted	admin	secur-name-regex	
2021-01-19 11:23:03	intgr-data-deleted	admin	secur-name-regex	
2021-01-18 15:33:50	rule-updated	admin		5XTC-FOUND


View 1 - 10 of 109

2.7 Admin > Configuration

Admin > Configuration has links to various general configuration pages.


Signals Technical Overview

 **ICON Signals**  Admin ▾ PBX ▾ Notification ▾ Workflow ▾  Logout

**Licensing**


Manage license keys to enable Signals functionality and integrations with other systems.

Select

**Logins**


Set up additional admin accounts for using the Signals web UI. (Not related to contacts.)

Select

**Database**


Change settings related to automatic backup and record maintenance of the Signals database.

Select

**Email**


Configure SMTP settings for sending email notifications from Signals.

Select

**Network**


Configure network settings.

Select

**Environment**


Locale, debug flags and platform-specific parameters.

Select

**ICApps**


Configure support for ICON-Cloud functionality via Twilio.

Select

**Data Transfer**

Define connections to other systems and manage client application configurations.

Select

**Inteliquent**

Configure support for Inteliquent SMS / MMS Messaging.

Select

2.8 Admin > Configuration > Licensing

This page shows which licenses are installed, and gives quantities for PBX station triggers and sensor device triggers. In most cases the Signals application must be restarted for new licenses to take effect – hence the 'Restart Signals' button on the right.

More details can be found in the Signals Technical Note on Licensing. (STN-Licensing.pdf)

Admin ▾ PBX ▾ Notification ▾ Workflow ▾
Logout

Licensing

site: plex1

System Status

Configuration

Change Log

Online Docs

License Type	Installed?
Signals Base	YES
Signals Station Triggers	YES (20)
Signals Device Triggers	YES (80)
Event: E911	YES
Event: Lockdown	YES
Event: Bldg Evacuation	NO
Event: Security	YES
Event: Environmental	YES
Integration: CSTA	YES
Integration: Rainbow	YES
Yearly Cloud Maintenance	YES

Add License

Trigger Info

csta.1 (0)
csta.2 (0)
csta.4 (0)
Station Used (0)
Station Total (20)
Station Remaining (20)
stddev (19)
monnit (18)
xtend (3)
Device Used (40)
Device Total (80)
Device Remaining (40)

Restart Signals

Serial: 180373B930C9

Remove All Licenses

Download Licenses

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2.9 Admin > Configuration > Logins

Signals Technical Overview

Most sites use the default admin login, but it is possible to set up additional logins with either full privilege (other than changing the default admin password) or access to a subset of all pages within the Signals UI.

ICON Signals

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Logout

Login Accounts

plex1

Configuration

Change Log

Online Docs

Logins

Roles

Rights

Username	Password	Role
reports	reports	Contacts Admin
general	general	General Admin
fulltech	fulltech	Full-Rights Tech

Page 1 of 1 (10) View 1 - 3 of 3

+ Add

Edit

Delete

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ICON Signals

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Logout

Login Accounts

plex1

Configuration

Change Log

Online Docs

Logins

Roles

Rights

Id	Name	Count
10	Full-Rights Tech	1
15	Contacts Admin	1
16	General Admin	1

Page 1 of 1 (10) View 1 - 3 of 3




+ Add

Edit

Delete

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Signals Technical Overview

 **ICON Signals**  Admin ▾ PBX ▾ Notification ▾ Workflow ▾  Logout

Login Accounts

plex1

Configuration

Change Log

Online Docs

Logins Roles **Rights**

This is a read-only list of rights that can be assigned to each role. (NOTE: some rights are not used in Signals.)

Id ↕	Name	Description
1	Full Control	Can do everything, including login account setup
2	PBX Programming	Can make changes to the phone system
3	General Config	Able to perform all non-application-specific configuration
21	IConference User	User level access to IConference server
22	IConference Integr	Can configure IConference server integration
32	Signals Programming	Modify rules and scripts executed when signals are raised
33	Contacts Config	Able to add/change/delete contacts, groups and locations
36	Sensor Config	Configure sensor functionality within ICON Signals

⏪ ⏩ Page 1 of 1 ⏪ ⏩ 10 ▾ View 1 - 8 of 8

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2.10 Admin > Configuration > Database

The 'Database' page contains configuration parameters to manage data backups and prune various log files generated by ICON Signals. The default settings on the 'Database' page are sufficient for most sites. The relevant buttons and settings are:

- *Backup, Restore and Download* buttons
- *DB Backup Time, DB Backup Interval, Archives To Keep* values
- *Daily Prune Time* value
- *Sensor Data and Signal Data* log file pruning values

Remaining fields are not currently used.

The screenshot shows the 'Database' configuration page in the ICON Signals admin interface. The page is divided into several sections:

- Navigation:** Top bar with 'ICON Signals' logo and 'Admin', 'PBX', 'Notification', 'Workflow' tabs. A 'Logout' button is in the top right.
- Left Sidebar:** A list of links: 'site: plex1', 'Configuration', 'Email', 'System Status', 'Change Log', and 'Online Docs'.
- Main Content Area:**
 - Disk Space:** A table showing 'Avail (MB)' as 419892 and 'Total (MB)' as 511584.
 - Database Info:** A table showing 'Host' as 127.0.0.1, 'DB Name' as iops, and 'Size (MB)' as 7.20.
 - Automatic Database Backup:** A table showing 'DB Version' as 0.85 and 'Most Recent Backup' as 19.36 days ago. Below this are three input fields: 'DB Backup Time' (03:31), 'DB Backup Interval' (21), and 'Archives To Keep' (6).
 - Database Prune:** A section with a 'Daily Prune Time' input field set to 03:45.
 - OXE CDR:** A section with a 'Days to Keep' dropdown menu set to 3 months.
 - Days to Keep other Records:** A section with three input fields: 'CSTA Msgs' (15), 'Sensor Data' (90), and 'Signal Data' (90).
 - Adv Log Pruning:** A section with a text area containing 'alert:3', 'alertcall:8', and 'healthcheck:30'.
- Buttons:** At the top right of the main content area are 'Backup', 'Restore', and 'Download' buttons. At the bottom right are 'Restore Defaults' and 'Save Changes' buttons.

2.11 Admin > Configuration > Email

The 'Email' page includes SMTP configuration as well as generic notification settings for basic system health checks.

Admin ▾ PBX ▾ Notification ▾ Workflow ▾
Logout

Email

site: plex1
 Configuration
 Database
 System Status
 Log View
 Change Log
 Online Docs

SMTP

Server

smtp.gmail.com

Port

587

☒ SSL / TLS

Username

omni.svcs@gmail.com

Password

Display Name

Plex990 Signals

Recip Count

1

Message Limit

24

Advanced [\[ref\]](#)

mailkit:1

Send Test Msg

☒ SysAdmin
 ☐ E911

(Save changes before sending a test message.)

Notification Times

SysAdmin

05:00

SysAdmin Notify Thresholds

Total DB Size (MB)

2000

Latest DB Backup

60

Free Disk Space

5000

Notification Email Addresses

SysAdmin

rduderstadt@iconvn.com

E911

rduderstadt@iconvn.com

Restore Defaults

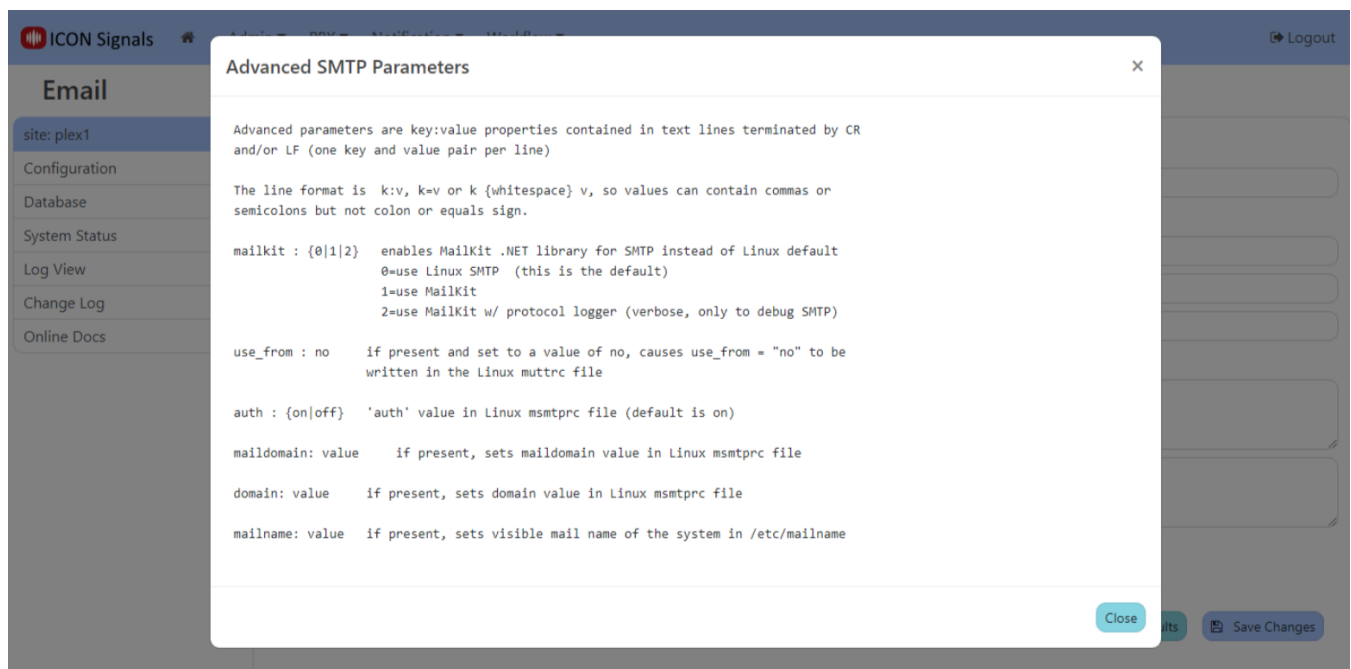
Save Changes

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Two different SMTP mechanisms are supported:

- Linux SMTP (default)
- Mailkit .NET library

In our experience, the best method and parameters to use depends on the customers' mail relay. Linux SMTP often works better for older SMTP relays, Mailkit for more modern ones.



2.12 Admin > Configuration > Network Settings

The 'Network Settings' page is self-explanatory. After changes are made, the operating system should be rebooted.

The screenshot shows the 'Network Settings' page in the ICON Signals admin interface. The top navigation bar includes the 'ICON Signals' logo and links for 'Admin', 'PBX', 'Notification', and 'Workflow'. A 'Logout' button is in the top right. On the left, a sidebar menu lists 'ih-signals', 'Configuration', 'Environment', 'SNMP Config', 'System Status', 'Change Log', and 'Online Docs'. The main content area is titled 'Network Settings' and contains several input fields for network configuration: 'Host Name' (signals-inhouse), 'IP Address' (10.129.0.154), 'Subnet Mask' (255.255.0.0), 'Gateway Address' (10.129.0.1), 'DNS Address 1' (10.129.0.16), and 'DNS Address 2' (empty). A 'Restart OS' button is located to the right of the IP Address field, and a 'Save Changes' button is at the bottom right of the form.

Field	Value
Host Name	signals-inhouse
IP Address	10.129.0.154
Subnet Mask	255.255.0.0
Gateway Address	10.129.0.1
DNS Address 1	10.129.0.16
DNS Address 2	

Restart OS

Save Changes

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2.13 Admin > Configuration > Environment

The 'Environment' page is primarily used for system integration testing. A few general purpose configuration settings such as `Locale` can also be found here.

ICON Signals

Admin ▾PBX ▾Notification ▾Workflow ▾

Logout

Environment

site: plex1

Configuration

Network Settings

SNMP Config

System Status

Log View

Change Log

Online Docs

Debug Flags [\[ref \]](#)

-Xgs-omc-cdr-csta-csta2-mq-mq2-mq0-Xxfer-sig-tw-sens-inov-psix-psix2-mon-mon0-mon2-rbw-rbw2-Xmx-Xmx2-relay-sd-sd2-Xmail-snmp-snmp2-pop3-tcp1-tcp12-itq-itq2-secur-secur2-

Advanced Params [\[ref \]](#)

Web URL Base

Authorized Requestors

Localeen-US ▾

Pfx TestingTESTING

Install TypeSite ▾

Pfx Not A Test

Status Mode1

Status Timeout10

Restore Defaults

Save Changes

ICON Signals | © 2018-2021 ICON Voice Networks

2.14 Admin > Configuration > ICApps

The ICApps page contains Twilio-based SMS and Text-to-Speech configuration data. Daily and month limits on SMS messages can be modified by ICON if necessary.

Admin ▾
PBX ▾
Notification ▾
Workflow ▾
Logout

ICON Cloud Apps Config (Twilio)

site: plex1

Configuration

Overwatch Config

System Status

Change Log

Online Docs

☒ Enable ICON Cloud Apps (Twilio)

Access Parameters

AccountSid

AC4

AuthToken

818c2

WebHook URL Base

https://devlab.icondatanetworks.com/sr/api/twilio/ex

ICApps Parameters

ICApps SMS Number

+19

ICApps Msg Service

ICApps Voice Number

+1

Voice Parameters

Speaker

alice

Language

en-US

Accept List

Deny List

972 929 9112 ;

Advanced Parameters [\[ref\]](#)

SMS Limits

Daily Limit

0

Monthly Limit

600

Warning Threshold

0.8

Current Counts

today: 0 month: 5

Text-to-Speech Limits

Daily Limit

0

Monthly Limit

300

Warning Threshold

0.7

Current Counts

today: 0 month: 0

Restore Defaults

Save Changes

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2.15 Admin > Configuration > SNMP Config

Currently the 'SNMP Config' page is not used. It is possible that a production use will be added in the future.

ICON Signals

Admin ▾PBX ▾Notification ▾Workflow ▾

Logout

SNMP Config

site: ih-signals

Configuration

Network Settings

Environment

Sensor Types

System Status

Change Log

Online Docs

☒ Enable SNMP

Monnit SNMP Parameters

☒ Enable Monnit SNMP

Query Port	161
Query Timeout	30
Query Retries	2
Query Interval	30
Trap Time Limit	210
Community	public

WebRelay SNMP Parameters

☐ Enable WebRelay SNMP

Restore Defaults

Save Changes

When SNMP is enabled, Signals listens for SNMP Traps on port 6501.

Configure Monnit gateways and other devices to send traps to that port at the Signals IP address.

ICON Signals | © 2018-2021 ICON Voice Networks

2.16 Admin > Configuration > Overwatch Config

Overwatch is an ICON tool used to monitor Signals instances and perform automatic database backups and software updates. It is configured by ICON during initial setup of a Signals site.

The screenshot shows the 'Overwatch Config (message queues)' page in the ICON Signals Admin interface. The page has a blue header with the 'ICON Signals' logo and navigation links for 'Admin', 'PBX', 'Notification', and 'Workflow'. A 'Logout' button is in the top right. On the left, a sidebar lists site-specific options for 'site: plex1', including 'Configuration', 'ICApps Config', 'System Status', 'Overwatch Status', 'Change Log', and 'Online Docs'. The main content area is titled 'Overwatch Config (message queues)' and contains several sections of configuration fields:

- Enable AMQP:** A checked checkbox.
- AMQP Servers:** A section with four input fields: 'Host Info 1' (mq3.icondatanetworks.com), 'Host Info 2' (mq5.icondatanetworks.com), 'Host Info 3' (empty), and 'Conn Timeout' (12).
- AMQP Identity:** A section with two input fields: 'This Node' (plex1) and 'Node Level' (1 (site)).
- Other AMQP Settings:** A section with four input fields: 'Node Tag' (empty), 'Register Interval' (1800), 'File Backup Node' (omni7), and 'App Gateway Node' (empty).
- Message Queue Parameters:** A section with two input fields: 'Block Size (KB)' (90) and 'File Xfer Timeout' (30).

At the bottom right of the configuration area, there are two buttons: 'Restore Defaults' and 'Save Changes'.

2.17 Admin > Configuration > Data Transfer

A *Data Transfer Connection* is configuration data for an external system or service which receives data from ICON Signals. For example, alert information sent to a VSS Alloy server.

The screenshot displays the 'Data Transfer Connections' page in the ICON Signals Admin interface. The top navigation bar includes the 'ICON Signals' logo and menu items for 'Admin', 'PBX', 'Notification', and 'Workflow', along with a 'Logout' button. A left sidebar lists navigation options: 'site: ih-signals', 'Configuration', 'Profiles', 'ICApps Config', 'System Status', 'Change Log', and 'Online Docs'. The main content area features a table with the following data:

Name	Type	Host	Port	
VSS-ICON-HQ	VssRecvng	10.129.0.146	8090	EDIT
				CREATE

At the bottom of the page, the footer text reads: 'ICON Signals | © 2018-2021 ICON Voice Networks'.

2.18 Admin > Configuration > Inteliquent

The Inteliquent page contains configuration data for use with Inteliquent's SMS service. Daily and month limits on SMS messages can be modified by ICON if necessary.

Admin ▾ PBX ▾ Notification ▾ Workflow ▾
Logout

Inteliquent Messaging

site: plex1

Configuration

Overwatch Config

System Status

Change Log

Online Docs

☒ Enable Inteliquent Messaging

Msg API Key

A5Z90J8DKSRB0gQzpYsfD76FBzssJ3Me

Outgoing Parameters

Outgoing SMS Number(s)

+19726561990, +19726561991, +19726561992, +197265

Daily Limit

0

Monthly Limit

600

Warning Threshold

0.8

Incoming Parameters

Accept List

Deny List

Advanced Parameters [\[ref\]](#)

preferred_sms: true

Current Counts

Outgoing Text

today: 0 month: 2

Incoming Text

today: 0 month: 2

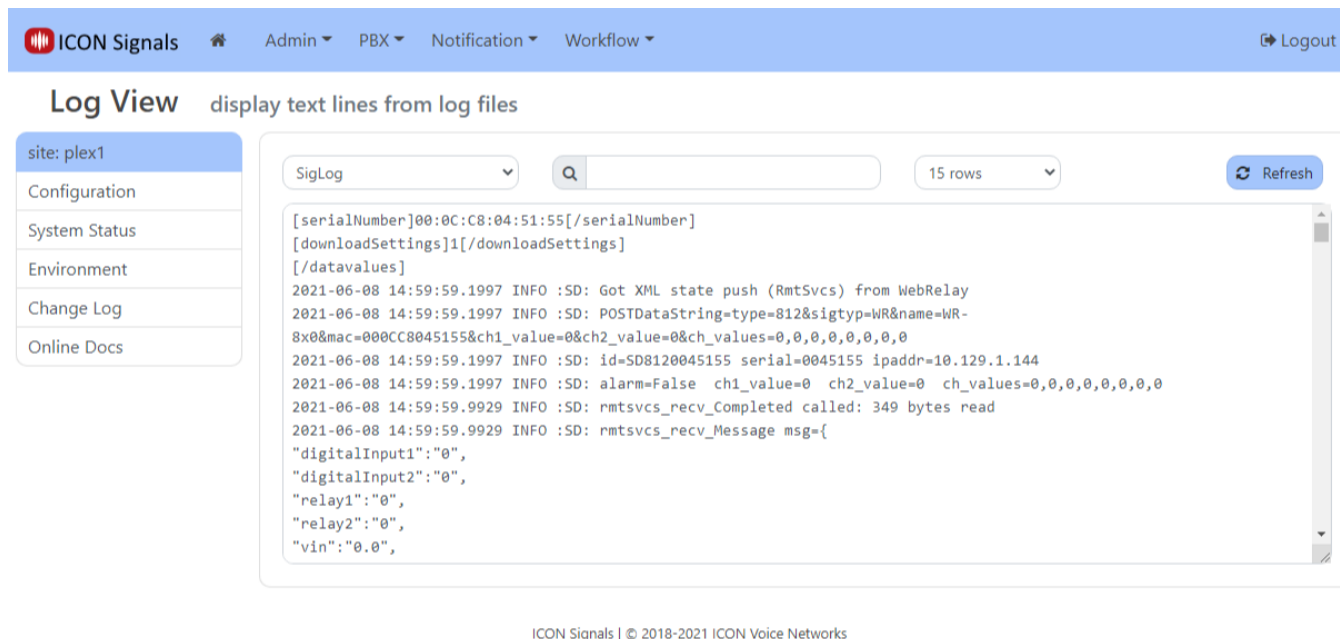
Restore Defaults

Save Changes

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2.19 Admin > Log View

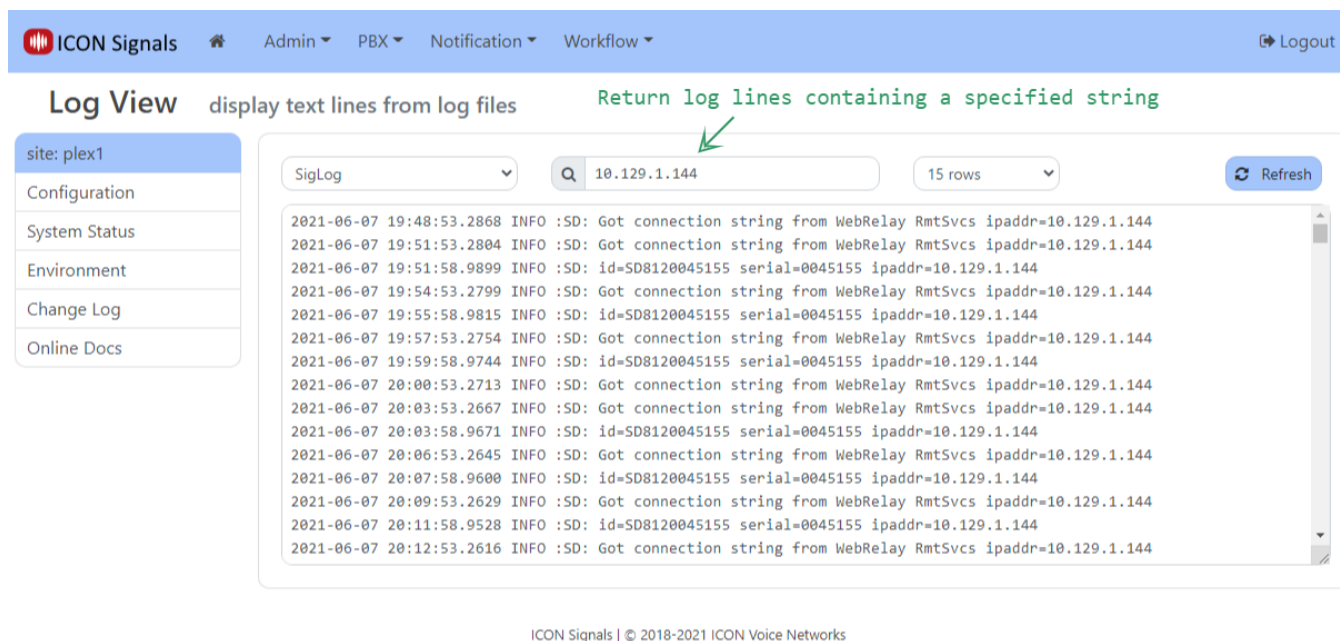
LogView shows data from the last few rollover log files. Recent SMTP and PBX log data can also be examined. There is also a filter text field. Click the Refresh button when changes are made or to see the latest data.



The screenshot shows the 'Log View' interface in the 'Admin' section. The header bar includes the 'ICON Signals' logo and navigation links for 'Admin', 'PBX', 'Notification', and 'Workflow'. A 'Logout' button is in the top right. The 'Log View' title is followed by the subtitle 'display text lines from log files'. On the left, a sidebar lists 'site: plex1' and various system settings. The main area features a search bar with 'SigLog' selected, a search icon, a '15 rows' dropdown, and a 'Refresh' button. The log entries are displayed in a text area, showing timestamps and system data.

```
[serialNumber]00:0C:C8:04:51:55[/serialNumber]
[downloadSettings]1[/downloadSettings]
[/datavalues]
2021-06-08 14:59:59.1997 INFO :SD: Got XML state push (RmtSvcs) from WebRelay
2021-06-08 14:59:59.1997 INFO :SD: POSTDataString=type=812&sigtyp=WR&name=WR-
8x0&mac=000CC8045155&ch1_value=0&ch2_value=0&ch_values=0,0,0,0,0,0,0
2021-06-08 14:59:59.1997 INFO :SD: id=SD8120045155 serial=0045155 ipaddr=10.129.1.144
2021-06-08 14:59:59.1997 INFO :SD: alarm=False ch1_value=0 ch2_value=0 ch_values=0,0,0,0,0,0,0
2021-06-08 14:59:59.9929 INFO :SD: rmtsvcs_recv_Completed called: 349 bytes read
2021-06-08 14:59:59.9929 INFO :SD: rmtsvcs_recv_Message msg={
  "digitalInput1":"0",
  "digitalInput2":"0",
  "relay1":"0",
  "relay2":"0",
  "vin":"0.0",
```

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This screenshot shows the 'Log View' interface with a search filter applied. The search bar now contains '10.129.1.144', and a green arrow points to it with the text 'Return log lines containing a specified string'. The log entries are filtered to show only those containing the specified IP address.

```
2021-06-07 19:48:53.2868 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
2021-06-07 19:51:53.2804 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
2021-06-07 19:51:58.9899 INFO :SD: id=SD8120045155 serial=0045155 ipaddr=10.129.1.144
2021-06-07 19:54:53.2799 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
2021-06-07 19:55:58.9815 INFO :SD: id=SD8120045155 serial=0045155 ipaddr=10.129.1.144
2021-06-07 19:57:53.2754 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
2021-06-07 19:59:58.9744 INFO :SD: id=SD8120045155 serial=0045155 ipaddr=10.129.1.144
2021-06-07 20:00:53.2713 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
2021-06-07 20:03:53.2667 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
2021-06-07 20:03:58.9671 INFO :SD: id=SD8120045155 serial=0045155 ipaddr=10.129.1.144
2021-06-07 20:06:53.2645 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
2021-06-07 20:07:58.9600 INFO :SD: id=SD8120045155 serial=0045155 ipaddr=10.129.1.144
2021-06-07 20:09:53.2629 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
2021-06-07 20:11:58.9528 INFO :SD: id=SD8120045155 serial=0045155 ipaddr=10.129.1.144
2021-06-07 20:12:53.2616 INFO :SD: Got connection string from WebRelay RmtSvcs ipaddr=10.129.1.144
```

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2.20 Admin > Event View

The Admin > Event View toplevel menu option opens the Notify Events, which in turn has links to the Signal Events and Sensor Events pages.

Notify Events displays records for individual notification messages sent to recipients or to Rainbow bubbles.

ICON Signals
Admin ▾
PBX ▾
Notification ▾
Workflow ▾
Log out

Notify Events

messaging sent and responses received

site: plex1

SETTINGS


Time	Type	DID	Ext	Name	Nbr	Email	Signame	Info
2021-06-08 15:43:30	RbwSent			RADTEST2			XTC-OFF-CH40-%	Alert[id=XTC201000002 name=Cancel Pendant Dev 2 state=OFF]
2021-06-08 15:43:30	RbwSent		2893	Rus	+19727420666	rduderstadt@icor	XTC-OFF-CH40-%	Alert[id=XTC201000002 name=Cancel Pendant Dev 2 state=OFF]
2021-06-08 15:43:25	RbwSent			RADTEST2			XTC-ON-CH40-%	Alert[id=XTC201000002 name=Cancel Pendant Dev 2 state=ON]
2021-06-08 15:43:25	RbwSent		2893	Rus	+19727420666	rduderstadt@icor	XTC-ON-CH40-%	Alert[id=XTC201000002 name=Cancel Pendant Dev 2 state=ON]
2021-06-08 15:43:25	RbwSent			RADTEST2			XTC-OFF-CH2-%P	Alert[id=XTC202000001 name=Pendant Dev 1 state=OFF]
2021-06-08 15:43:25	RbwSent		2893	Rus	+19727420666	rduderstadt@icor	XTC-OFF-CH2-%P	Alert[id=XTC202000001 name=Pendant Dev 1 state=OFF]
2021-06-08 15:43:19	RbwSent			RADTEST2			XTC-ON-CH2-%Pi	Alert[id=XTC202000001 name=Pendant Dev 1 state=ON]
2021-06-08 15:43:19	RbwSent		2893	Rus	+19727420666	rduderstadt@icor	XTC-ON-CH2-%Pi	Alert[id=XTC202000001 name=Pendant Dev 1 state=ON]
2021-06-08 07:15:21	RbwSent			RADTEST2			MON-ESC3-%Cor	Alert[id=M00300320725 name=Contact 00320725 state=ON]
2021-06-08 07:15:21	RbwSent		2893	Rus	+19727420666	rduderstadt@icor	MON-ESC3-%Cor	Alert[id=M00300320725 name=Contact 00320725 state=ON]

Page 1 of 384

View 1 - 10 of 3,833

Signals Technical Overview

Signal Events shows the signals that have been raised and the number of the rule executed (if any). A RuleNo of 0 means that no matching rule was found.

 Admin ▾ PBX ▾ Notification ▾ Workflow ▾ [Logout](#)

Signal Events

[plex1](#)
[System Status](#)
[Rule List](#)
[Notify Events](#)
[Sensor Events](#)
[Change Log](#)
[Online Docs](#)

[SETTINGS](#)




Page 1 of 442 10								View 1 - 10 of 4,418	
Time	Signal Name	RuleNo	Rule Expr	State	AckCodes	HelpCodes	Category		
2021-06-08 15:43:30	XTC-OFF-CH40-%Cancel Pendant	19	XTC-(ON OFF)-CH	OFF			ALERT		
2021-06-08 15:43:30	XTC-OFF-%Cancel Pendant Dev 2	0		OFF					
2021-06-08 15:43:25	XTC-ON-CH40-%Cancel Pendant	19	XTC-(ON OFF)-CH	ON			ALERT		
2021-06-08 15:43:25	XTC-ON-%Cancel Pendant Dev 2	0		ON					
2021-06-08 15:43:25	XTC-OFF-CH2-%Pendant Dev 1%	16	XTC-(ON OFF)-CH2	OFF			ALERT		
2021-06-08 15:43:25	XTC-OFF-%Pendant Dev 1%	0		OFF					
2021-06-08 15:43:18	XTC-ON-CH2-%Pendant Dev 1%	16	XTC-(ON OFF)-CH2	ON			ALERT		
2021-06-08 15:43:18	XTC-ON-%Pendant Dev 1%	0		ON					
2021-06-08 09:20:15	MON-OFF-%Button 00320729%	0		OFF					
2021-06-08 09:19:55	MON-ON-%Button 00320729%	0		ON					

Page 1 of 442 10View 1 - 10 of 4,418

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Signals Technical Overview

Sensor Events show incoming messages from sensor devices as well as the current state of the device.

 **ICON Signals**  Admin ▾ PBX ▾ Notification ▾ Workflow ▾  Logout

Sensor Events

 data received from sensor devices

plex1

System Status

Sensor Grid

Signal Events

Notify Events

Change Log

Online Docs

SETTINGS

Page 1 of 13,024 10

View 1 - 10 of 130,238

Time	DevID	Name	Alr	Cfm	LwB	Mis	EC	AlrSt	Val1	Val2
2021-06-08 16:27:59	SD8120045155	WR-8x0 0045155	0	0	0	0	0	00000000	0.00	0.00
2021-06-08 16:27:59	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-06-08 16:27:47	XTC2000000000	Srvr ICON Voice Networks	0	0	0	0	0	00000000	0.00	0.00
2021-06-08 16:27:47	M04600738288	LowTemp 00738288	0	0	0	0	0	00000000	23.40	0.00
2021-06-08 16:27:47	M04300320724	Humidity 00320724	0	0	0	0	0	00000000	57.29	24.54
2021-06-08 16:25:47	XTC2000000000	Srvr ICON Voice Networks	0	0	0	0	0	00000000	0.00	0.00
2021-06-08 16:23:59	SD8120045155	WR-8x0 0045155	0	0	0	0	0	00000000	0.00	0.00
2021-06-08 16:23:59	SD803004C1FE	X-401 004C1FE	0	0	0	0	0	00000000	0.00	0.00
2021-06-08 16:23:47	XTC2000000000	Srvr ICON Voice Networks	0	0	0	0	0	00000000	0.00	0.00
2021-06-08 16:22:48	M01100320729	Button 00320729	0	1	0	0	0	00000000	0.00	0.00

Page 1 of 13,024 10

View 1 - 10 of 130,238

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3.0 PBX Top-level Menu

ICON Signals receives and interprets CSTA messages from Alcatel OXO and OXE systems and Asterisk Management Interface (AMI) events from Asterisk PBXs. This top level menu contains links to the main pages for those subsystems as well as for the interface with Alcatel Rainbow.

3.1 PBX > PBX Systems

Up to six PBXs can be defined in the 'PBX Systems' page. Although not explicitly controlled within the UI, the design supports:

- At most one ICONnect (Asterisk) PBX
- Up to five Alcatel PBXs **with no overlap in their extension ranges**

	Type	Name	Addr	
PBX.1	OXE	In-House	10.130.0.45	EDIT
PBX.2	ICN	signals-ICONnect	10.129.0.154	EDIT
PBX.3	OXO	rainbox-oxo	10.130.0.50	EDIT
PBX.4	OXO	Hiro-OXO	10.132.100.10	EDIT
PBX.5				CREATE
PBX.6				CREATE

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PBX System Information

PBX.3 [rainbox-oxo]

Type: OXO

Name: rainbox-oxo

Address: 10.130.0.50

[Delete PBX](#) [Cancel](#) [Accept](#)

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3.2 PBX > Alcatel OXO/OXE

This is the primary configuration page for a connection between ICON Signals and an individual Alcatel PBX. Left side navigation links lead to secondary status pages for this connection.

The screenshot displays the 'Alcatel CSTA Config' page within the ICON Signals web interface. The top navigation bar includes 'Admin', 'PBX', 'Notification', and 'Workflow' menus, along with a 'Logout' button. The left sidebar contains links for 'ih-signals', 'PBX Systems', 'Monitored Stations', 'CSTA Msgs', 'Call Descr', 'Alcatel Rainbow', 'Change Log', and 'Online Docs'. The main content area is titled 'Alcatel CSTA Config' and shows the configuration for 'PBX.3 (rainbox-oxo) [PBX.1 | PBX.4]'. It includes a 'Restart CSTA' button and a 'CONNECTED at 2021-01-26 03:15:08' status. The 'CSTA Parameters' section has three checked options: 'Enable CSTA', 'Enable CSTA Message Logging', and 'Enable Query Device Cycle'. Below these are input fields for 'CSTA Port' (2555), 'CSTA Restart Time' (03:15), and 'E911 Test Nbrs' (3999). The 'Stations To Monitor' section shows a list of station ranges: '1050-1053,2800-2833,285X,2860,284[34],2864,287[01],2874,2878-2880,3911,3999,1098'. At the bottom right are 'Restore Defaults' and 'Save Changes' buttons. The footer indicates 'ICON Signals | © 2018-2021 ICON Voice Networks'.

Normally, all three *enable* boxes are checked. As a CSTA client, Signals sends a `MonitorStart` message for each station of interest and waits for a response indicating the station exists and the phone system will send events associated with that station to Signals.

Signals examines the comma-separated list of stations and station ranges to monitor and sends a `MonitorStart` message for each one. When a successful `MonitorStartResponse` message is received, that station is included in the monitored stations list and displayed in the 'Monitored Stations' page.

For Alcatel, the default CSTA Port is 2555. If a restart time is specified, the CSTA connection will be closed and reopened at that time every day.

Within Signals, calls to station(s) in 'E911 Test Nbrs' are treated the same as E911 calls. This provides a way to test Signals E911 notification functionality without actually calling the emergency dispatch center.

3.3 PBX > Alcatel OXO/OXE > Monitored Stations

This page shows the stations currently being monitored *for this CSTA connection*. If a station you expected to be monitored (via the 'Stations To Monitor' field) is not in this list, then it means either the station is not connected or is not configured within the PBX.

Reminder: If there are multiple CSTA connections, the stations for those PBXs **cannot overlap**.

ih-signals

PBX Systems

Alcatel OXO/OXE

CSTA Msgs

Call Descr

Alcatel Rainbow

Change Log

Online Docs

Admin ▾PBX ▾Notification ▾Workflow ▾

Logout

Monitored Stations

PBX.3 (rainbow-oxo) [PBX.1|PBX.4]

Monitored Stations (total=53):

1050, 1051, 1052, 1053, 2800, 2801, 2802, 2803, 2804, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2829, 2830, 2831, 2833, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2859, 2860, 2843, 2844, 2864, 2870, 2871, 2874, 2878, 2879, 2880, 3911, 3999, 1098

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3.3 PBX > Alcatel OXO/OXE > CSTA Msgs

This page shows the content of recent CSTA messages received by ICON Signals. There is a `Settings` dialog to change display options and a `Send Message` dialog which can be used to create an individual request message to the PBX for testing and troubleshooting.

ICON Signals
 Admin ▾
 PBX ▾
 Notification ▾
 Workflow ▾
 Logout

Alcatel CSTA Messages

ih-signals

- PBX Systems
- Alcatel OXO/OXE
- Monitored Stations
- Call Descr
- Alcatel Rainbow
- Change Log
- Online Docs

PBX.1 (In-House) [[PBX.3](#) | [PBX.4](#)]

[\[Send Msg \]](#)
[\[Settings \]](#)

```

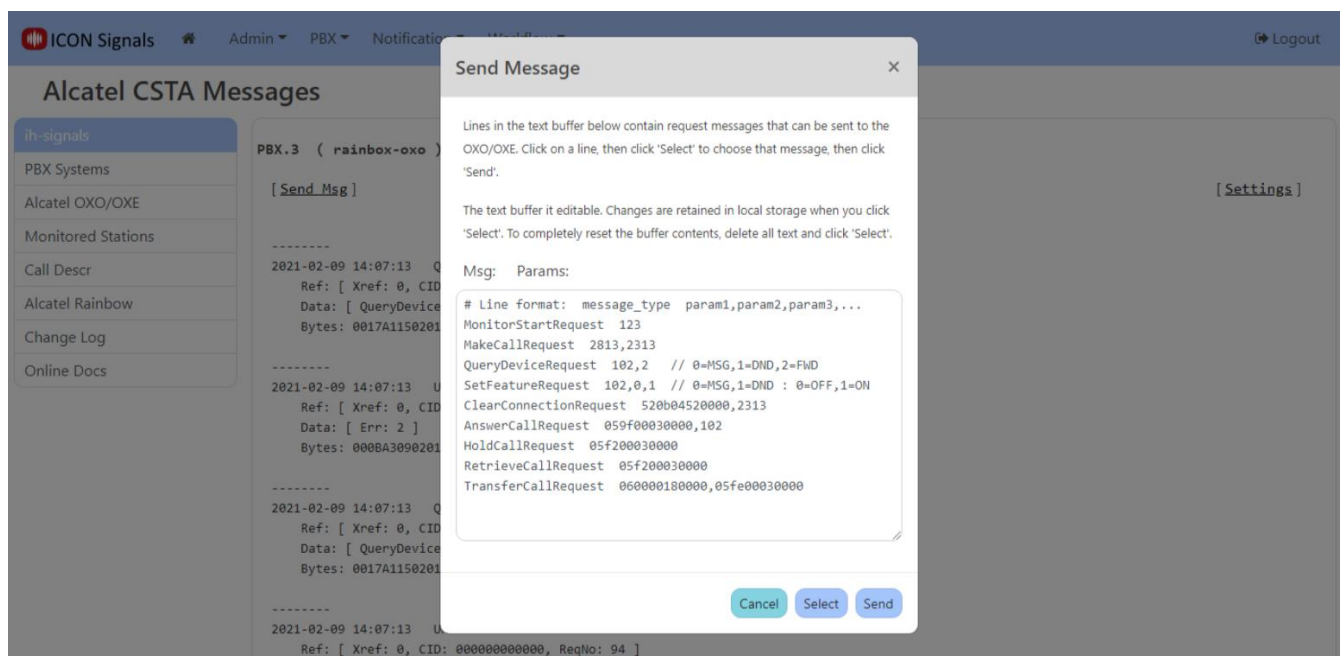
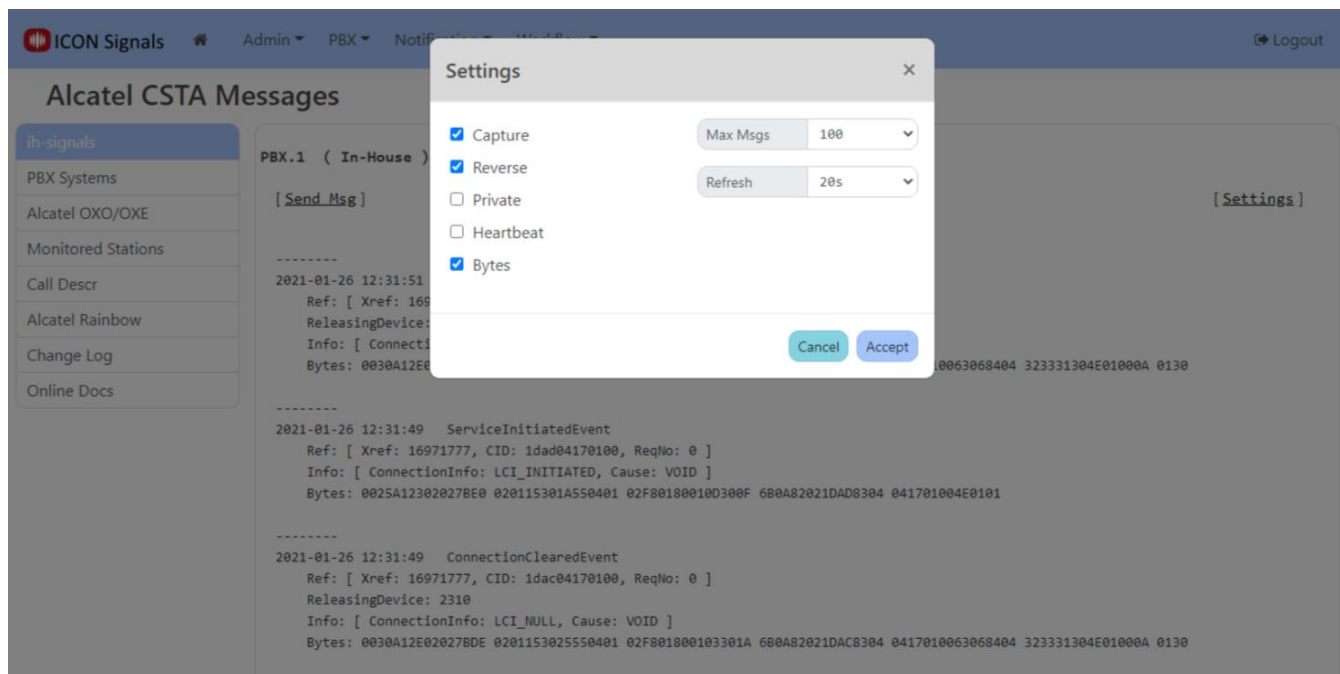
-----
2021-01-26 12:31:51 ConnectionClearedEvent
Ref: [ Xref: 16971777, CID: 1dad04170100, ReqNo: 0 ]
ReleasingDevice: 2310
Info: [ ConnectionInfo: LCI_NULL, Cause: VOID ]
Bytes: 0030A12E02027BE2 0201153025550401 02F801800103301A 6B0A82021DAD8304 0417010063068404 323331304E01000A 0130

-----
2021-01-26 12:31:49 ServiceInitiatedEvent
Ref: [ Xref: 16971777, CID: 1dad04170100, ReqNo: 0 ]
Info: [ ConnectionInfo: LCI_INITIATED, Cause: VOID ]
Bytes: 0025A12302027BE0 020115301A550401 02F801800100300F 6B0A82021DAD8304 041701004E0101

-----
2021-01-26 12:31:49 ConnectionClearedEvent
Ref: [ Xref: 16971777, CID: 1dac04170100, ReqNo: 0 ]
ReleasingDevice: 2310
Info: [ ConnectionInfo: LCI_NULL, Cause: VOID ]
Bytes: 0030A12E02027BD8 0201153025550401 02F801800100301A 6B0A82021DAC8304 0417010063068404 323331304E01000A 0130

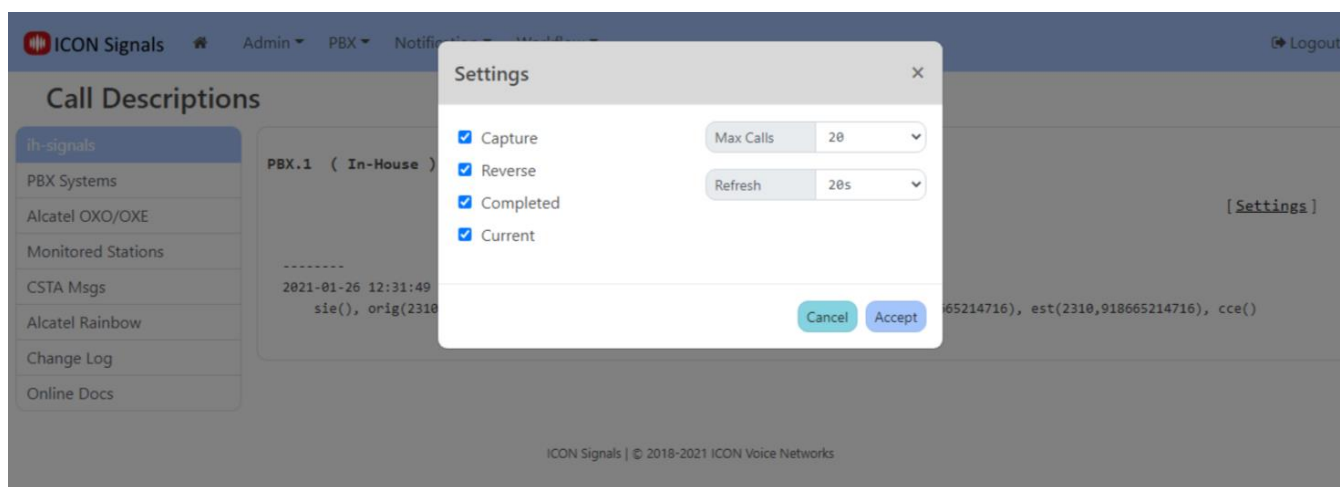
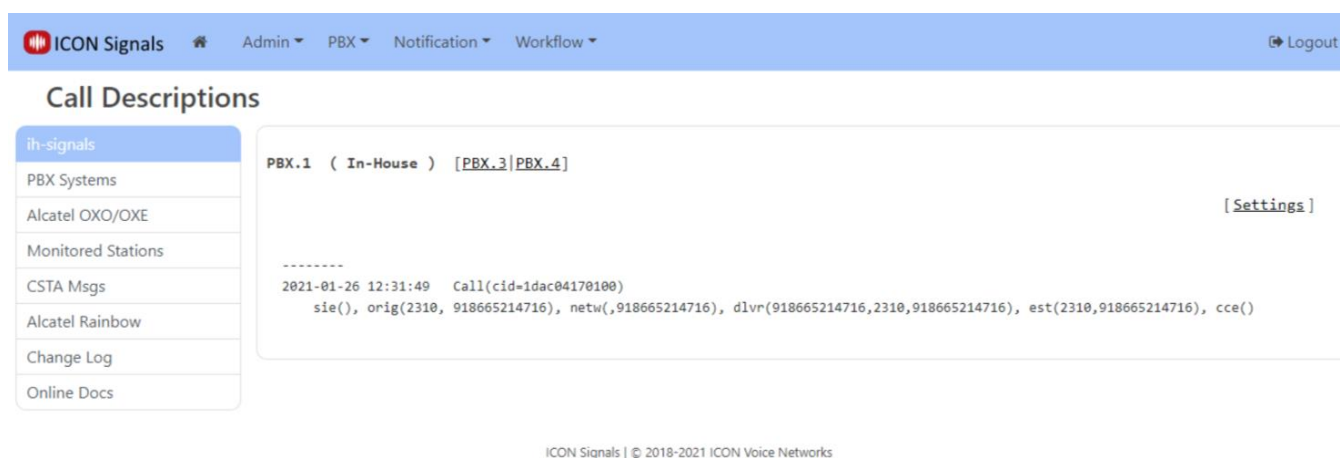
-----
2021-01-26 12:31:38 EstablishedEvent
Ref: [ Xref: 16971777, CID: 1dac02be0104, ReqNo: 0 ]
AnsweringDevice: 2310
CalledDevice: 918665214716
Info: [ ConnectionInfo: LCI_CONNECTED, Cause: NEWCALL ]
Bytes: 0054A15202027BD8 0201153049550401 02F801800106303F 6B0A82021DAC8304 02BF0104630EF820C 3931383636353231 3437313661068404
                    
```

Signals Technical Overview



3.4 PBX > Alcatel OXO/OXE > Call Descr

The 'Call Descriptions' page is similar in nature to the 'CSTA Messages' page, but provides a very terse description of the entire call instead of message content details.



3.5 PBX > Alcatel Rainbow

Rainbow is a cloud-based communication service. The 'Alcatel Rainbow' page is used to configure the Signals interface to Rainbow.

The screenshot shows the 'Alcatel Rainbow' configuration page within the 'PBX' section of the 'Admin' menu. The page is divided into several sections:

- Interface [Restart | Logout]**: Displays system logs including StartTime, UpdateTime, Logged in at, and Msgs. It also shows the SDK version (1.86.0) and a warning: '** SDK Out of Date **' with current and latest versions (2.0.1-1ts.0).
- Account Information**: Contains fields for App ID (4*264), App Secret (708ehs4bxUuHda10x0p6), Email (sig), and Password (masked).
- Parameters**: Includes Proxy Host URL (http://127.0.0.1:6504), Restart Time (04:15), and Handshake Period (3).
- API Request Limits**: Shows Daily Limit (0), Monthly Limit (3000), Warning Threshold (0.8), and Current Counts (today: 6, month: 205).
- Enablement**: Features checkboxes for 'Enable Rainbow proxy service' and 'Enable Anonymous Queries', both of which are checked.
- Advanced [ref]**: A text area containing 'verbose:true'.

At the bottom right, there are buttons for 'Restore Defaults' and 'Save Changes'. The footer indicates 'ICON Signals | © 2018-2021 ICON Voice Networks'.

These field values are typically entered by ICON personnel if Rainbow integration is supported for this site. A Rainbow Integration license key must also be installed.

3.6 PBX > Alcatel Rainbow > Rainbow Commands

Interactive commands within Rainbow to initiate and manage lockdown or evacuation procedures can be configured in this page.

ih-signals

Alcatel Rainbow

Rainbow Bubbles

Configuration

System Status

Change Log

Online Docs

ICON Signals

Admin

PBX

Notification

Workflow

Logout

Rainbow Commands

Lockdown/SRP Rules

SRP - LOCKDOWN

SRP - LOCKOUT

SRP - EVACUATE

SRP - SHELTER

SRP - CLEAR

Lockdown/SRP Config

Timeout120

☒ Allow Impromptu Lockdown Message

☒ Require Confirmation

Various Commands (w/ comma-separated variants)

HelpHELP

SensorSENSOR, SENSORS

AlarmALARM, ALARMS

CameraCAMERA, CAMERAS, CAMS

Lockdown/SRP Commands (w/ comma-separated variants)

LockdownLOCKDOWN

LockoutLOCKOUT

EvacuateEVACUATE

ShelterSHELTER

Lockdown/SRP Emoji

Lockdown:lock:

Lockout:raised_hand:

Evacuate:family_mvgb:

Shelter:place_of_worship:

Clear:white_check_mark:

Restore Defaults

Save Changes

3.7 PBX > Alcatel Rainbow > Rainbow Bubbles

ih-signals

Alcatel Rainbow

Configuration

Change Log

Online Docs

REFRESH

SETTINGS

Name	Topic	Created	Properties	Handler	DID	Groups		
IH M21 Sales S	Internal Test	No		InteliquentSMI	+19726561330		EDIT	
IH M21 Tech S	Inteliquent many-to-one	No		InteliquentSMI	+19726561331		EDIT	
IH Signals Con	In-House Signals Consol	No		Lockdown		security,lockdown,e911,switch,cool	EDIT	
RD Bubble 1	Rus Duderstadt, Russel A	No					EDIT	
Signals Consol	Console Bubble for ICON	No		Lockdown			EDIT	
Site Emergenc	Automated Emergency In	Yes					EDIT	DELETE
Status	Status Updates from Aut	Yes					EDIT	DELETE
Tel.Unlim. DID	Customer Demo	No		InteliquentSMI	+13259999510		EDIT	
WASM Sensor	Status for WASM Enviror	Yes					EDIT	DELETE

Page 1 of 110

View 1 - 9 of 9

ADD

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3.8 PBX > ICON Voice Call

ih-signals

Callout Recordings

Configuration

System Status

Change Log

Online Docs

ICON Signals

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Logout

ICON Voice Call Config

PBX.2 (signals-ICONnect)

IP Address:

10.129.0.154

Dial Prefix

9

AMI Parameters

☒ Enable AMI

AMI Port

5038

AMI Username

signals

AMI Password

Voice Call API Parameters

Callout URI

/ivr/callout/execute.php

[Voice Call Server Config](#)

CONNECTED at 2021-01-08 15:09:49

AMI DTMF Handler Actions

AMI Station Locations

Restore Defaults

Save Changes

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3.9 PBX > ICON Voice Call > Voice Callout Recordings

Signals Technical Overview

ICON Signals

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Logout

Voice Callout Recordings

ih-signals

Voice Call Svrr

Configuration

Change Log

Online Docs

REFRESH

Name	Modified	Duration	Size			
7	Fri May 08 2020 22:06:12	00:00:00	13094	PLAY	EDIT	DELETE
8	Fri May 08 2020 22:06:12	00:00:00	8486	PLAY	EDIT	DELETE
9	Fri May 08 2020 22:06:12	00:00:00	11558	PLAY	EDIT	DELETE
ADMIN	Fri May 08 2020 22:09:12	00:00:00	13094	PLAY	EDIT	DELETE
AlertAssistMalabarMed2	Mon Jun 15 2020 13:02:50	00:00:03	63398	PLAY	EDIT	DELETE
AlertFrzDoorEvansCtr	Mon Jun 15 2020 13:02:50	00:00:03	54950	PLAY	EDIT	DELETE
AlertSarnoFrzDoor4	Mon Jun 15 2020 13:02:50	00:00:03	49574	PLAY	EDIT	DELETE
AlertTempOorSilverPalmFrig	Mon Jun 15 2020 13:02:50	00:00:03	61862	PLAY	EDIT	DELETE
AlertWaterDetPalmBayMedRm	Mon Jun 15 2020 13:02:50	00:00:03	58406	PLAY	EDIT	DELETE
allclear-d3	Wed Jan 15 2020 11:06:34	00:00:06	107404	PLAY	EDIT	DELETE
allclear-d4	Thu May 21 2020 10:07:32	00:00:06	107404	PLAY	EDIT	DELETE
alyssa-alarm-d4	Thu May 21 2020 11:32:47	00:00:10	164006	PLAY	EDIT	DELETE
BREAK	Thu Apr 30 2020 15:33:56	00:00:02	40204	PLAY	EDIT	DELETE
BREAK-ROOM	Fri May 08 2020 22:07:34	00:00:01	16934	PLAY	EDIT	DELETE
CLASSROOM	Fri May 08 2020 22:07:18	00:00:01	16166	PLAY	EDIT	DELETE
codered	Thu Feb 08 2018 10:08:14	00:00:14	234444	PLAY	EDIT	DELETE
codered-ack	Tue Nov 14 2017 16:29:38	00:00:12	197324	PLAY	EDIT	DELETE
codeyellow	Thu Feb 08 2018 10:09:21	00:00:13	219724	PLAY	EDIT	DELETE
cooler-1	Fri Feb 02 2018 10:38:08	00:00:10	160204	PLAY	EDIT	DELETE
DOCTORS-OFFICE	Fri May 08 2020 22:08:18	00:00:01	21158	PLAY	EDIT	DELETE

Page 2 of 6 20 View 21 - 40 of 104

DEFAULTS IMPORT CREATE

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ICON Signals

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Logout

Voice Callout Recordings

ih-signals

Voice Call Svrr

Configuration

Change Log

Online Docs

REFRESH

Name	Modified	Duration	Size			
7	Fri May 08 2020 22:06:12	00:00:00	13094	PLAY	EDIT	DELETE
8	Fri May 08 2020 22:06:12	00:00:00	8486	PLAY	EDIT	DELETE
9	Fri May 08 2020 22:06:12	00:00:00	11558	PLAY	EDIT	DELETE
ADMIN	Fri May 08 2020 22:09:12	00:00:00	13094	PLAY	EDIT	DELETE
AlertAssistMalabarMed2	Mon Jun 15 2020 13:02:50	00:00:03	63398	PLAY	EDIT	DELETE
AlertFrzDoorEvansCtr	Mon Jun 15 2020 13:02:50	00:00:03	54950	PLAY	EDIT	DELETE
AlertSarnoFrzDoor4	Mon Jun 15 2020 13:02:50	00:00:03	49574	PLAY	EDIT	DELETE
AlertTempOorSilverPalmFrig	Mon Jun 15 2020 13:02:50	00:00:03	61862	PLAY	EDIT	DELETE
AlertWaterDetPalmBayMedRm	Mon Jun 15 2020 13:02:50	00:00:03	58406	PLAY	EDIT	DELETE
allclear-d3	Wed Jan 15 2020 11:06:34	00:00:06	107404	PLAY	EDIT	DELETE
allclear-d4	Thu May 21 2020 10:07:32	00:00:06	107404	PLAY	EDIT	DELETE
alyssa-alarm-d4	Thu May 21 2020 11:32:47	00:00:10	164006	PLAY	EDIT	DELETE
BREAK	Thu Apr 30 2020 15:33:56	00:00:02	40204	PLAY	EDIT	DELETE
BREAK-ROOM	Fri May 08 2020 22:07:34	00:00:01	16934	PLAY	EDIT	DELETE
CLASSROOM	Fri May 08 2020 22:07:18	00:00:01	16166	PLAY	EDIT	DELETE
codered	Thu Feb 08 2018 10:08:14	00:00:14	234444	PLAY	EDIT	DELETE
codered-ack	Tue Nov 14 2017 16:29:38	00:00:12	197324	PLAY	EDIT	DELETE
codeyellow	Thu Feb 08 2018 10:09:21	00:00:13	219724	PLAY	EDIT	DELETE
cooler-1	Fri Feb 02 2018 10:38:08	00:00:10	160204	PLAY	EDIT	DELETE
DOCTORS-OFFICE	Fri May 08 2020 22:08:18	00:00:01	21158	PLAY	EDIT	DELETE

Page 2 of 6 20 View 21 - 40 of 104

DEFAULTS IMPORT CREATE

Edit Recording

NameAlertWaterDetPalmBayMedRm

ModifiedMon Jun 15 2020 13:02:50

Duration00:00:03

Size (bytes)58406

Number to Call

Cancel Call Me

4.0 Notification Toplevel Menu

The Notification menu contains items:

- People
- Groups
- Locations
- Zones
- Send Mass Text (if configured)

People and *Groups* are closely-related pages.

Within ICON Signals, a *Location* represents an individual site such as a building or campus while a *Zone* presents a small area such as a room, lobby, hallway, etc.

4.1 Notification > People

This page contains contact information records for people to receive notifications.

The screenshot displays the 'People' page in the ICON Signals interface. The page title is 'People' with a subtitle 'contacts to receive notifications'. The left sidebar contains links for 'site: plex1', 'Groups', 'Locations', 'Configuration', 'Change Log', and 'Online Docs'. The main content area features a search bar and a 'SETTINGS' button. Below these is a table of contact records. The table has columns for Name, Ext, Number, Email, Location, Zone, and Groups. The data rows are as follows:

Name	Ext	Number	Email	Location	Zone	Groups	EDIT	DELETE
Kevin K			kkelleher@iconvn.com				EDIT	DELETE
Lara				Houston		test2.group-5.group-6	EDIT	DELETE
Lara	123						EDIT	DELETE
Michael M	2816	+15	mmarchioni@iconvn.com	Dallas		dev-rd-mm	EDIT	DELETE
Rus	2893	+197	rduderstadt@iconvn.com	Dallas		dev.dev-smh.shed-bbq.dev-rd-r	EDIT	DELETE
Rus Pobox			972-...@...il.net				EDIT	DELETE
Signals GCP			signals.gcp@gmail.com				EDIT	DELETE

Below the table, there is a pagination bar showing 'Page 2 of 2' and a 'View 11 - 17 of 17' indicator. At the bottom of the page, there are buttons for 'GROUP IMPORT', 'GROUP DELETE', and '+ ADD'. The footer text reads 'ICON Signals | © 2018-2021 ICON Voice Networks'.

Editing a contact record displays a dialog as shown below.

The screenshot shows the 'Edit Contact' modal in the ICON Signals interface. The modal is centered over a background showing a 'People' list and a 'Groups' table. The 'Edit Contact' form contains the following fields and options:

- Name: Rus
- Extension: 2893
- Number: +197
- Email: rduderstadt@iconvn.com
- Prefs: ☒ Text, ☒ Call, ☒ Email, ☒ Rbw
- Privs: ☒ Lockdown, ☒ Alarm, ☒ Sensor, ☒ Manage
- Location: Dallas
- Zone:
- Area: Lab
- Camera:
- Groups: dev, dev-rd-mm, dev-smh

The background shows a 'People' list with columns for Name, Extension, and Email. The 'Groups' table has columns for Group Name, Edit, and Delete. The 'Edit Contact' modal has 'Cancel' and 'Accept' buttons at the bottom.

Number is a DID or cell number for the contact.

The Prefs checkboxes control which communication methods are enabled for the contact. For example, SMS-based notification messages will not be sent to the contact unless the Text checkbox is checked.

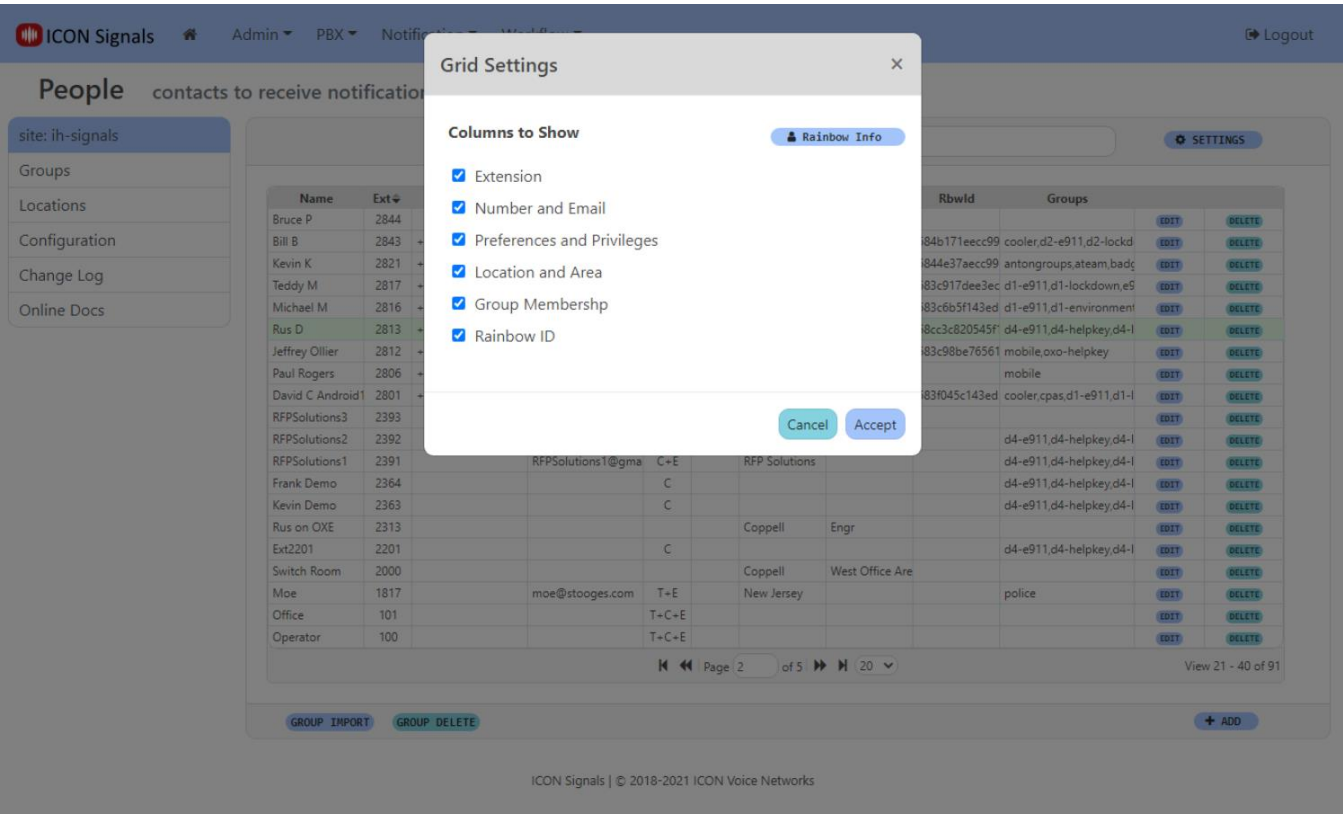
The Privs checkboxes enable interactive Rainbow commands to initiate lockdowns and request sensor and alarm data.

Location and Zone are described below. Area is an informal, deprecated zone description which is only used if the location and zone are not set for the contact.

The Groups dropdown is used to add or remove group labels for the contact.

Signals Technical Overview

The Settings button in the upper right corner of the page displays a dialog to control which columns are shown in the Contacts grid.



4.2 Notification > Groups

Groups are simply labels which are applied to contacts and used to control who receives a particular notification message. For example, when Signals detects a 911 call, it executes an E911 rule which sends SMS and Email messages to people in the e911 group.

There is no limit on the number of group labels that can be applied to a contact. If a notification is sent to multiple groups, contacts will not receive duplicate messages.

The screenshot displays the 'Contact Groups' management interface in the ICON Signals application. The top navigation bar includes 'Admin', 'PBX', 'Notification', and 'Workflow' menus. A sidebar on the left provides navigation for 'People', 'Locations', 'Configuration', 'Change Log', and 'Online Docs'. The main content area features a table of groups with columns for 'Group Name', 'Edit', and 'Delete'. The groups listed are: e911, e999, empty, genieinnovations, granite-alert, hirotest, iconalecloud, jg-demo, kevintest, kk-demo, lockdown, lorigroups, lynnhousing, lynnmanagement, and maintenance. Each group has corresponding 'EDIT' and 'DELETE' links. At the bottom of the table, there is a pagination bar indicating 'Page 3 of 4' and a '+ ADD' button to create new groups.

Group Name	Edit	Delete
e911	EDIT	DELETE
e999	EDIT	DELETE
empty	EDIT	DELETE
genieinnovations	EDIT	DELETE
granite-alert	EDIT	DELETE
hirotest	EDIT	DELETE
iconalecloud	EDIT	DELETE
jg-demo	EDIT	DELETE
kevintest	EDIT	DELETE
kk-demo	EDIT	DELETE
lockdown	EDIT	DELETE
lorigroups	EDIT	DELETE
lynnhousing	EDIT	DELETE
lynnmanagement	EDIT	DELETE
maintenance	EDIT	DELETE

Page 3 of 4 | 15 | View 31 - 45 of 59

+ ADD

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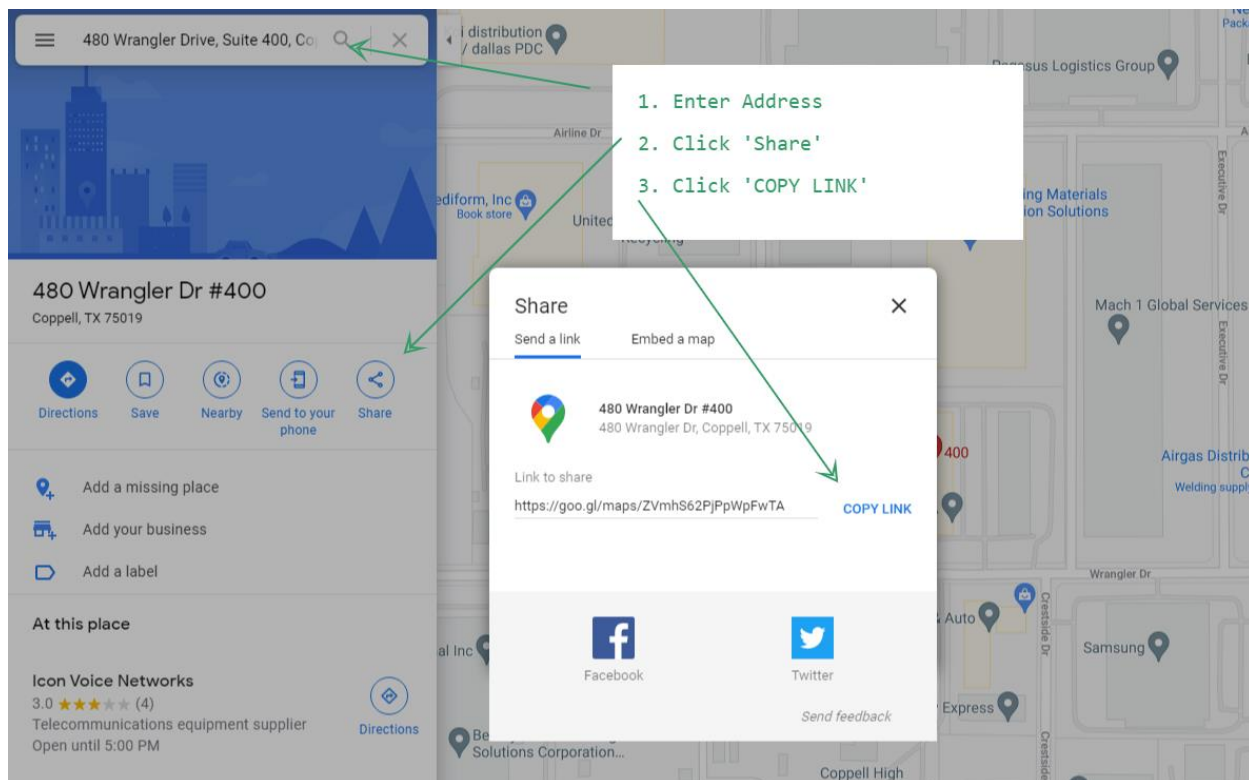
4.3 Notification > Locations

A *Location* in ICON Signals is usually a street address of a building or campus.

The screenshot displays the 'Locations' management interface in the ICON Signals application. The top navigation bar includes 'Admin', 'PBX', 'Notification', and 'Workflow' menus. The sidebar on the left lists navigation options: 'Zones', 'People', 'Groups', 'Configuration', 'Change Log', and 'Online Docs'. The main content area shows a table of locations with columns for Name, Address, and MapURL. Each row includes 'EDIT' and 'DELETE' buttons. A modal window titled 'Edit Location' is currently open, allowing users to update a location's details. The modal contains three input fields: 'Location Name' (set to 'Coppell'), 'Street Address' (set to '480 Wrangler Drive, Suite 400, Coppell TX 75019'), and 'Map URL' (set to 'https://goo.gl/maps/2ujv3MGBzkB2'). 'Cancel' and 'Accept' buttons are at the bottom of the modal.

Name	Address	MapURL	EDIT	DELETE
New Jersey	255 S State Rt 17 # 204, Hackensack, NJ 07601	https://goo.gl/maps/XJgbNg2KUuK2	EDIT	DELETE
Coppell	480 Wrangler Drive, Suite 400, Coppell TX 75019	https://goo.gl/maps/2ujv3MGBzkB2	EDIT	DELETE
Irving	8001 Jetstar, Irving, TX 75063	https://goo.gl/maps/VYQxTJkg4y62	EDIT	DELETE
Calabasas	26801 Agoura Road, Agoura Hills, CA	https://goo.gl/maps/Rt3JYGV52422	EDIT	DELETE
WASM	17051 Dallas Pkwy, Addison, TX 75001	https://goo.gl/maps/Q28sKsZGzJS2	EDIT	DELETE
StMarys	6171 Kempville Cir, Norfolk, VA 23502	https://goo.gl/maps/HXf3AV38TGLKkuG6	EDIT	DELETE
RFP Solutions	10 Greenwood Ave, Woodbury, NJ 08096	https://goo.gl/maps/r9LbpxEwaujBuwW8	EDIT	DELETE

Any mapping service can be used, but we typically use Google Maps to obtain a URL associated with a location.



4.4 Notification > Locations > Zones

A *Zone* in ICON Signals is a room, hallway, or other area within a *Location*.

An associated webcam and/or floorplan URL can be included in notification messages from an alerting device in a zone.

Some zones can be designated as 'parent' zones. When an alert is sent by a device in a child zone that doesn't have a webcam ID, Signals can use the parent zone webcam ID instead. For example, a school might have a webcam in a hallway, but not in nearby classrooms. Alerts from devices in those classrooms could use the hallway webcam in notification messages.

Signals Technical Overview

ICON Signals Admin ▾ PBX ▾ Notification ▾ Workflow ▾ Logout

Zones

 used for various devices

site: inhouse-64bit

Locations

People

Groups

Configuration

Change Log

Online Docs

☐ Show Misc IDs

Name	Parent	Location	CameraID	Floorplan		
Center of Warehouse		Coppell			EDIT	DELETE
Engr Lab		Coppell			EDIT	DELETE
Server Room	First Floor NW Section	Coppell	CAM82	https://drive.google.com/file/d/1	EDIT	DELETE
Nurse Station		WASM			EDIT	DELETE
First Floor NW Section		Coppell			EDIT	DELETE
server-rm		Coppell			EDIT	DELETE
break-rm-north		Coppell			EDIT	DELETE
break-rm-south		Coppell			EDIT	DELETE
tech-train		Coppell			EDIT	DELETE

Page 1 of 1 10 View 1 - 9 of 9

[ZONE IMPORT](#) [LOC DELETE](#) [+ ADD](#)

ICON Signals | © 2018-2021 ICON Voice Networks

ICON Signals Admin ▾ PBX ▾ Notification ▾ Workflow ▾ Logout

Zones

 used for various devices

site: inhouse-64bit

Locations

People

Groups

Configuration

Change Log

Online Docs

☐ Show Misc IDs

Name	Parent	Location	CameraID	Floorplan		
Center of Warehouse		Coppell			EDIT	DELETE
Engr Lab		Coppell			EDIT	DELETE
Server Room	First Floor NW Section	Coppell	CAM82	https://drive.google.com/file/d/1	EDIT	DELETE
Nurse Station		WASM			EDIT	DELETE
First Floor NW Section		Coppell			EDIT	DELETE
server-rm		Coppell			EDIT	DELETE
break-rm-north		Coppell			EDIT	DELETE
break-rm-south		Coppell			EDIT	DELETE
tech-train		Coppell			EDIT	DELETE

Page 1 of 1 10 View 1 - 9 of 9

[ZONE IMPORT](#) [LOC DELETE](#) [+ ADD](#)

Edit Zone

Zone Name

Server Room

Location

Coppell

Parent

First Floor NW Section

Camera ID

CAM82

Floorplan URL

<https://drive.google.com/file/d/1CTwYuasITEhhWx>

[Cancel](#) [Accept](#)

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4.5 Notification > Send Mass Text

It is possible to send a mass notification message using the ICON Signals UI.

1. Select one or more groups
2. Select one or more communication methods
3. Type a message in the text area
4. Click the Send Message button

ICON Signals Admin PBX Notification Workflow

Send Mass Text

send mass notifications via Text, Email and/or Rainbow

Recipients and Methods Set Preset

weather

--- Select group to add or remove ---

Select Methods: ☒ Text ☒ Email ☐ Rainbow

Message To Send

Subject Severe Weather

Strong thunderstorms are expected this afternoon. All outdoor activities after 1pm are cancelled.

< > Send Message

Presets

1: 2: 3:

4: 5: 6:

Status sent: Mon Jun 14 2021 4:26 pm Clear

Texts: 1 Emails: 1 Rbw-Msgs: 0

Ext	Name	Number	Type
2893	Rus	+19	Email
		+19	Text

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Mass Notification is enabled in ICON Signals by:

1. Creating a notification group named `empty`
2. Creating a rule named `MASS-TEXT` which sends notifications to the `empty` group

Contact Groups

site: plex1	Group Name		
People	foo	EDIT	DELETE
Locations	bar	EDIT	DELETE
Configuration	empty	EDIT	DELETE
Change Log	dev-smh	EDIT	DELETE
	d4-lockdown	EDIT	DELETE

Rule 64: MASS-TEXT

Main

SMS

Voice

Email

Rainbow

T2S

Actions

Feedback

Advanced

Rule Name and Type

Disable Rule

Sample Expressions

Expression

MASS-TEXT

Alert Type

Alert

Description

PreCondition

PreCondition Helper

☐ Clone On Update

Rule Summary

Notifications	SMS, Email, Rainbow
Special Actions	
PostExec	
TestMode Action	Normal Execution
Created	2020-04-23 15:09:02
Updated	2020-05-15 12:38:56

Cancel

Update

The screenshot shows a configuration window titled "Rule 64: MASS-TEXT". It features a tabbed interface with "SMS" selected. Under "SMS (Text) Notifications", there is a "Recipients" section with a text input field containing "#grp.number.empty" and a "#grp" button. Below this is a "Message" section with a text input field and a "samples" button. At the bottom right are "Cancel" and "Update" buttons. The background shows a sidebar with various menu items like "plex", "Signal", "Cam", "Relay", "Sens", "Scrip", "Conf", "Chan", and "Online".

The rule serves as a template for a mass notification message. Recipient groups and message content are obtained from the Mass Notification page itself before the rule is executed.

ICON Signals

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Send Mass Text

send mass notifications via Text, Email and/or Rainbow

Recipients and Methods

weather

--- Select group to add or remove ---

Select Methods: ☒ Text ☒ Email ☐ Rainbow

Message To Send

Sent 2021/06/14 15:55:40

Subject

We have a likelihood of severe weather this afternoon.
All outdoor activities after 2pm are cancelled.

Select message text previously sent from this computer.

< >

Send Message

Presets

1: weather

2:

3:

4:

5:

6:

Status sent: Mon Jun 14 2021 5:14 pm

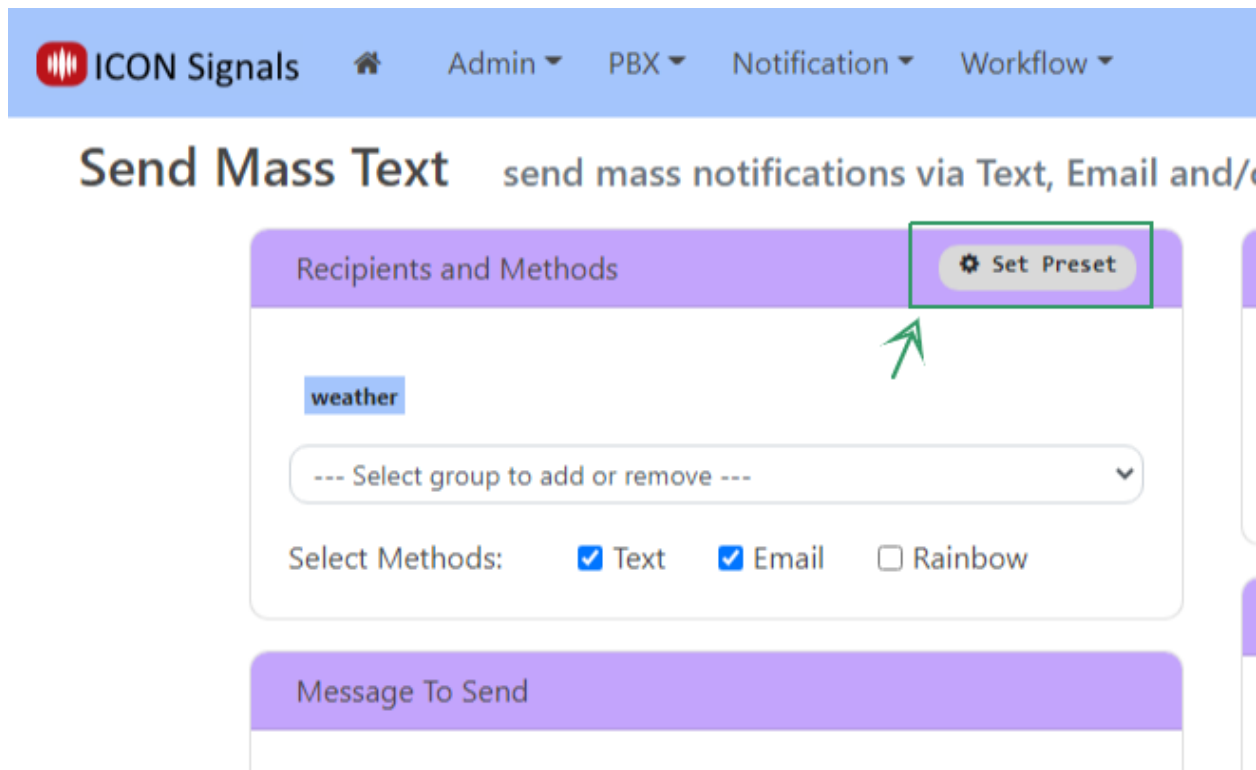
Clear

Texts: 1 Emails: 1 Rbw-Msgs: 0

Ext	Name	Number	Type
2893	Rus	+19	Email
		+19	Text

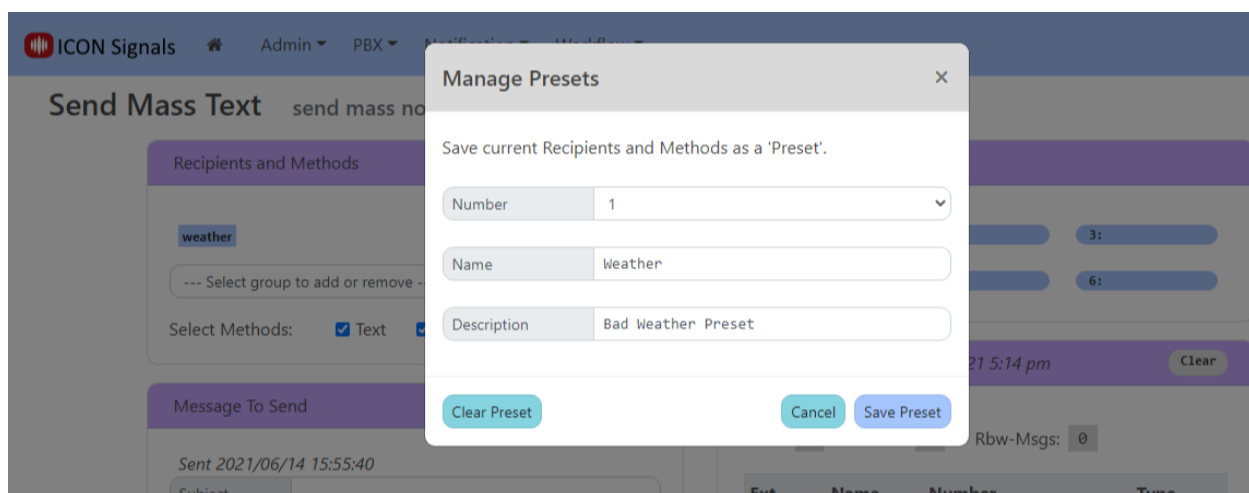
Summary information about notifications sent when 'Send Message' was clicked

Data about previously-sent messages is stored in the local browser cache for possible use next time.



Notification groups and communication methods can be saved in a 'preset' for later use. (Think of radio preset buttons.)

1. Set the groups and methods
2. Click the 'Set Preset' gear button
3. Select the number of the preset, and enter a name and description



Signals Technical Overview

Clicking a preset will then set the groups and methods for the notification.

The screenshot displays the 'Weather' notification preset configuration in the ICON Signals application. The interface is divided into two main sections: 'Recipients and Methods' on the left and 'Presets' on the right. The 'Recipients and Methods' section includes a 'Set Preset' button, a text input field containing 'weather', a dropdown menu for selecting groups, and checkboxes for 'Text', 'Email', and 'Rainbow' methods. The 'Presets' section shows a grid of six preset buttons, with the first button labeled '1: Weather' highlighted by a green box. A green arrow points from a text annotation to this button. Below the presets, a 'Status' section shows the message was sent on 'Mon Jun 14 2021 5:14 pm' with a 'Clear' button. At the bottom, a summary shows 'Texts: 1', 'Emails: 1', and 'Rbw-Msgs: 0'.

ICON Signals Admin PBX Notification Workflow

Weather Bad Weather Preset

Clicking this, sets the groups & methods and changes the page title

Recipients and Methods **Set Preset**

weather

--- Select group to add or remove ---

Select Methods: ☒ Text ☒ Email ☐ Rainbow

Message To Send

Presets

1: Weather 2: 3: 4: 5: 6:

Status sent: Mon Jun 14 2021 5:14 pm **Clear**

Texts: 1 Emails: 1 Rbw-Msgs: 0

5.0 Workflow Toplevel Menu

The Workflow menu contains items:

- Sensor Grid
- Sensor Types
- Rule List
- Integrations

A number of additional configuration pages will be covered in the Workflow > Sensor Types section.

5.1 Workflow > Sensor Grid

Status information for all known devices is shown in the sensor grid. When data is received for a new device, ICON Signals adds it to the database and begins displaying it in the grid.

ICON Signals Admin ▾ PBX ▾ Notification ▾ Workflow ▾ [Logout](#)

Sensor Grid

plex1

Alarm: 2 Miss: 35 Batt: 0 [SETTINGS](#)

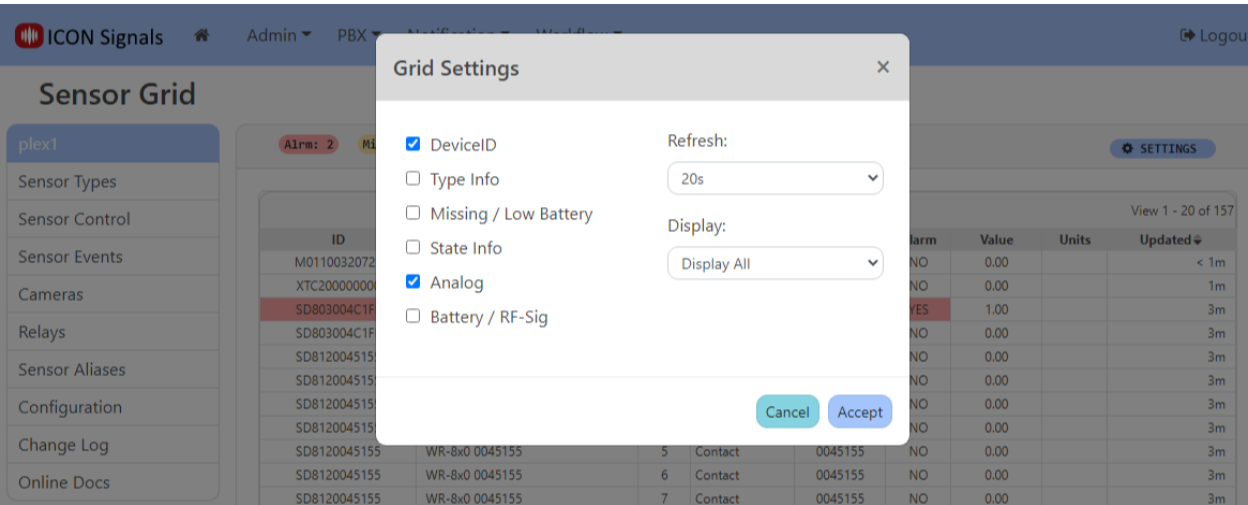
ID	Name	Ch	ChType	Serial	Alarm	Value	Units	Updated
XTC200000000	Srvr ICON Voice Networks	1	Server	200000000	NO	0.00		< 1m
SD803004C1FE	X-401 004C1FE	1	Contact	004C1FE	YES	1.00		< 1m
SD803004C1FE	X-401 004C1FE	2	Contact	004C1FE	NO	0.00		< 1m
M01100320729	Button 00320729	1	Button	00320729	NO	0.00		1m
SD8120045155	WR-8x0 0045155	1		0045155	NO	0.00		2m
SD8120045155	WR-8x0 0045155	2	Contact	0045155	NO	0.00		2m
SD8120045155	WR-8x0 0045155	3	Contact	0045155	NO	0.00		2m
SD8120045155	WR-8x0 0045155	4	Contact	0045155	NO	0.00		2m
SD8120045155	WR-8x0 0045155	5	Contact	0045155	NO	0.00		2m
SD8120045155	WR-8x0 0045155	6	Contact	0045155	NO	0.00		2m
SD8120045155	WR-8x0 0045155	7	Contact	0045155	NO	0.00		2m
SD8120045155	WR-8x0 0045155	8	Contact	0045155	NO	0.00		2m
M00200320722	Temp 00320722	1	Temperature	00320722	NO	73.40	degF	15m
M00900320728	OpenClosed 00320728	1	OpenClosed	00320728	NO	1.00		15m
M04600738288	LowTemp 00738288	1	Temperature	00738288	NO	75.56	degF	15m
M04300320724	Humidity 00320724	1	Humidity	00320724	NO	56.08	%RH	25m
M04300320724	Humidity 00320724	2	Temperature	00320724	NO	74.53	degF	25m
M04300320724	Humidity 00320724	3	DewPoint	00320724	NO	57.85	degF	25m
XTC201000002	Cancel Pendant Dev 2	1	Callpoint	201000002	NO	0.00		7d 20h 10m
XTC201000002	Cancel Pendant Dev 2	2	DURESS BUTTON	201000002	NO	0.00		7d 20h 10m

Page 1 of 8 20 View 1 - 20 of 157

ICON Signals | © 2018-2021 ICON Voice Networks

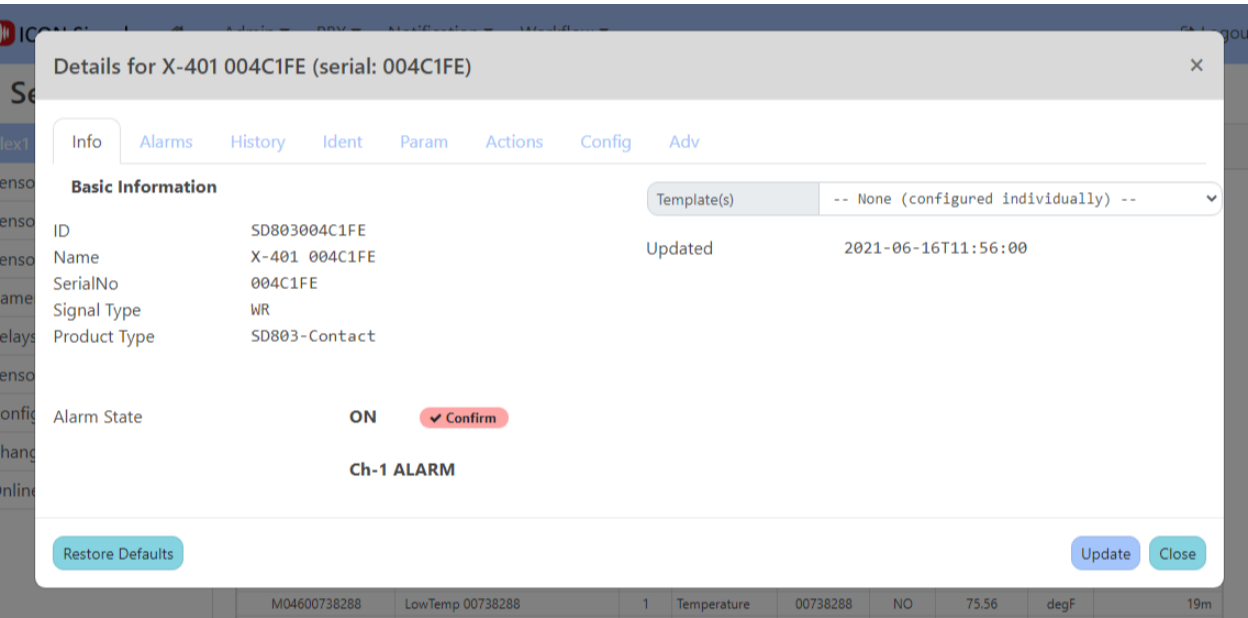
In Signals, all sensor devices have one or more I/O channels. The X-401 device in these figures has two contact closure channels.

The Settings column controls which columns are shown in the sensor grid.



The Info tab shows basic information about the device and may include a Confirm button if the device is currently in alarm state.

The Template(s) dropdown will be discussed later in this section.



Details for X-401 004C1FE (serial: 004C1FE)

Info

Alarms

History

Ident

Param

Actions

Config

Adv

Recent Alarms

Time	State	Flags	User
2021-06-16 11:53:31	ON	00000001	
2021-05-26 15:57:04	OFF	00000000	
2021-05-26 15:56:58	ON	00000001	
2021-05-26 15:51:28	ON	00000001	
2021-05-26 15:51:24	OFF	00000000	
2021-05-26 15:50:05	ON	00000001	
2021-05-26 15:29:28	OFF	00000000	
2021-05-26 15:28:37	ON	00000001	
2021-05-26 12:45:27	OFF	00000000	
2021-05-26 12:45:03	ON	00000001	
2021-05-26 12:44:50	ON	00000001	
2021-05-26 12:44:50	OFF	00000000	
2021-05-26 12:44:28	OFF	00000000	
2021-05-26 12:44:25	ON	00000001	
2021-05-26 12:44:14	OFF	00000000	

«

»

Update

Close

Page 1 of 8

20

View 1 - 20 of 157

Signals Technical Overview

Details for X-401 004C1FE (serial: 004C1FE)

InfoAlarmsHistoryIdentParamActionsConfigAdv

Events Table

Time	Alr	Cfm	LoB	Mis	LgE	Val1	Val2	Val3	Flags
2021-06-16 11:58:51	1	0	0	0	0	1.00	0.00	0.00	00000001
2021-06-16 11:56:00	1	0	0	0	0	1.00	0.00	0.00	00000001
2021-06-16 11:53:31	1	0	0	0	0	1.00	0.00	0.00	00000001
2021-06-16 11:52:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:48:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:44:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:40:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:36:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:32:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:28:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:24:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:20:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:16:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:12:00	0	0	0	0	0	0.00	0.00	0.00	00000000
2021-06-16 11:08:00	0	0	0	0	0	0.00	0.00	0.00	00000000

ExportUpdateClose

Page 1 of 820View 1 - 20 of 157

When sending notification messages associated with the device, Signals uses the Area field if a zone is not set for a device.

Details for X-401 004C1FE (serial: 004C1FE)

InfoAlarmsHistoryIdentParamActionsConfigAdv

Device Identity

NameX-401 004C1FE

LocationHouston

Zone

Data Xfer

IP Addr:Port10.129.1.143

MAC Address000CC804C1FE

Description

Parent ID

AreaSouth Hall

Camera

Restore DefaultsUpdateClose

M00200320722Temp 003207221Temperature00320722NO73.58degF20m

M00900320728OpenClosed 003207281OpenClosed00320728NO1.00degF20m

Escalations are covered in a separate technical note: STN-Escalations.

ICON Signals can be configured to only display and/or raise signals for a limited subset of known devices. The `Registered` checkbox adds or removes the sensor to this subset. Additional details will be provided later in this section.

Consider a device that has both *Lockdown* and *Medical Emergency* contact closures connected to buttons. We want to perform different actions for those two events. If the `Channel Signals` checkbox is checked, then the system raises a separate channel-specific signal when an I/O channel enters or leaves alarm state. This makes it easy to create unique rules for each channel.

The `Has Sticky Alarm` checkbox is used for momentary contact button devices. Usually the `auto_confirm` advanced parameter is also set for that device.

The `NonConfirmable` checkbox determines whether a device alarm can be confirmed in the Signals UI. (Note: A “confirmed” alarm is not the same as a cleared alarm. It is an acknowledgement of a device in alarm state. The alarm must still be cleared either physically or by some other mechanism.)

ID	Device	Channel	Value	Unit
M00900320726	OpenClosed	00320726	1	OpenClosed
M04600738288	LowTemp	00738288	1	Temperature
M04300320724	Humidity	00320724	1	Humidity

Signals Technical Overview

Details for X-401 004C1FE (serial: 004C1FE)

Info

Alarms

History

Ident

Param

Actions

Config

Adv

Signals Raised and Rules Matched for this device

Alarm ON signal raised: WR-ON-%X-401 004C1FE%

Rule: 25 Expression: WR-ON-%(X-401|401)

Rule: 26 Expression: WR-ON-%X-401

Rule: 80 Expression: WR-ON

Alarm OFF signal raised: WR-OFF-%X-401 004C1FE%

Rule: 24 Expression: WR-OFF-%X-40(1|4)

Update

Close

M00900320728	OpenClosed 00320728	1	OpenClosed	00320728	NO	1.00			13m
M04600738288	LowTemp 00738288	1	Temperature	00738288	NO	75.74	degF		13m

67

Signals Technical Overview

The content of the `Config` tab is device-dependent. The following two figures show 'Config' for a WebRelay contact closure device and a Monnit temp/humidity sensor respectively.

Details for X-401 004C1FE (serial: 004C1FE)

Info Alarms History Ident Param Actions Config Adv

SD Channel-1 Config

Alarm Mode Switch is Closed

SD Channel-2 Config

Alarm Mode Switch is Closed

WebRelay Device Setup

Restore Defaults Update Close

Details for Humidity 00320724 (serial: 00320724)

Info Alarms History Chart Ident Param Actions Config Adv

Changes will be made when the sensor sends its next message.

Analog Parameters

Alarm Mode Too Low or Too High

High Value 60.00 %RH

Low Value 25.00 %RH

Deadband 1.50 %RH

Analog-2 Parameters

Alarm Mode Too Low or Too High

High Value 79.00 degF

Low Value 32.00 degF

Deadband 1.49 degF

Gateways

GW 1 GW-973274

GW 2

Transmission & Sampling

Normal Xmit 30

Aware Xmit 10

Link Xmit 30

Samples 4

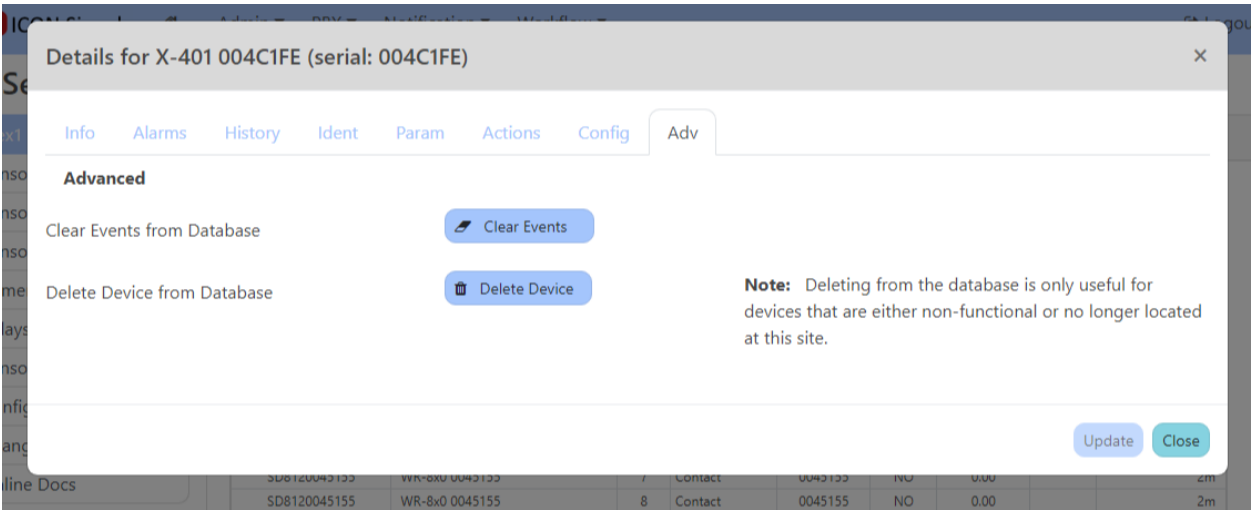
Retry Count 3

Failed Xmit 2

Restore Defaults Update Close

Signals Technical Overview

The Adv (Advanced) tab is used to scrub a no-longer-operational sensor device from the Signals database.

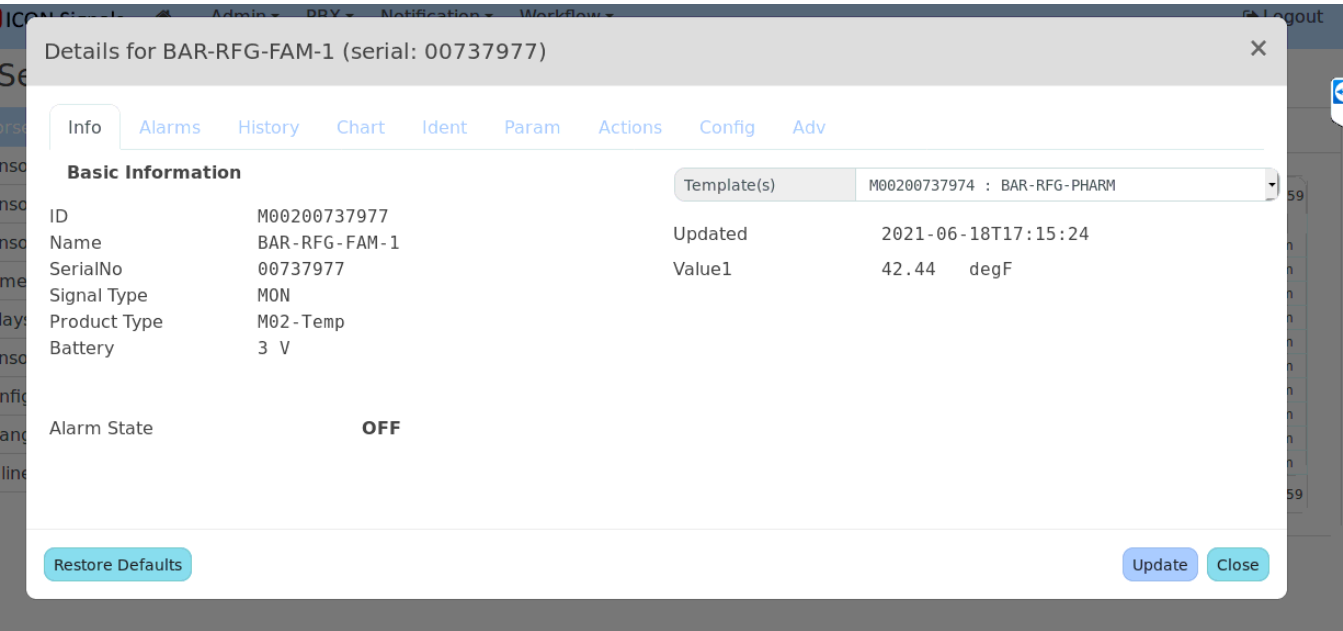


Returning to the `Info` tab, the `Template(s)` dropdown can be used to have one device serve as the configuration template for other devices *of the exact same type*.

The dropdown will be set to one of:

- `-- None (configured individually) --`
- `** This is a Template Device **`
- The ID/Name of another device which has been set as a template

In the following two figures below, a refrigerator temperature sensor named `BAR-RFG-FAM-1` is using configuration settings of another temp sensor named `BAR-RFG-PHARM`. Consequently, all of the data fields in the `Config` tab are greyed out (disabled).



ICON Signal Admin PRY Notification Workflow Log

Details for BAR-RFG-FAM-1 (serial: 00737977) X

Info Alarms History Chart Ident Param Actions Config Adv

Changes will be made when the sensor sends its next message.

Analog Parameters

Alarm Mode	Too High	⬆
High Value	46.00	degF
Low Value	36.00	degF
Deadband	1.49	degF

Gateways

GW 1	Barton-973273	⬆
GW 2		⬆

Transmission & Sampling

Normal Xmit	30
Aware Xmit	7
Link Xmit	60
Samples	3
Retry Count	6
Failed Xmit	2

This feature is explained in detail in the technical note: STN-DeviceTemplates.

5.2 Workflow > Sensor Types

This page contains a configuration group box for each type of sensor data as well as types of incoming data from external systems.

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Logout

Sensor Types

enable/disable device interfaces

plex1

Sensor Grid

Sensor Control

SNMP Config

Sensor Gateways

Cameras

Relays

System Status

Change Log

Online Docs

☒ Standard Devices (StdDev)

WebRelay Listening Mode

Rmt-Svcs + Mimic + XCD ▾

Advanced [ref]

xcd_debounce: 6
esc_reset=07:00

☒ TCPL

Ports

6511, 6512, 6513

Handlers

securalert, ascom_st_marys, fusion_fire

Advanced [ref]

ascom_timeout: -3

☐ POP3

Server

Interval

180

Handler

log

Advanced [ref]

☐ NOAA RSS

Check Interval

10

Alert Interval

45

RSS Feeds: [find them here]

☒ Monnit

☒ Listen for Monnit sensor data

Server Port

3000

Gateways / Sensors

Restart Interface

Advanced [ref]

mis_det_startup: 3
mis_det_gateway: 30
esc_reset:07:00

☒ XTendCall

Missing Minutes

21

Channel Map

255:2 100:40 90:14
250:3 254: 4
15:5

Advanced [ref]

☒ SecurAlert

Missing Minutes

15

Channel Map

Advanced [ref]

☐ Matrix

Signals Technical Overview

The screenshot displays a web-based configuration interface for 'Signals'. It features several collapsible sections, each with an enable/disable checkbox and a title. The 'RSS Feeds' section is currently expanded, showing a list of feeds with a 'find them here' link. The 'PointSix' section is collapsed. The 'Inovonics' section is also collapsed. The 'Matrix' section is expanded, showing various configuration parameters such as 'Event Msg Port', 'DENY Limit', 'DENY Interval', 'Unlock Pulse', 'Door Ajar Interval', 'COSEC or Panel Server' (with fields for Address, Username, Password, and Panel Doors), and buttons for 'Delete Devices' and 'Import Devices'. At the bottom right, there are two buttons: 'Restore Defaults' and 'Save Changes'.

☐ RSS Feeds

RSS Feeds: [[find them here](#)]

1	https://alerts.weather.gov/cap/wwaatmget.php?x=FLC086
2	
3	

☐ PointSix

PointSix UDP Port	6767
Battery Exp Days	180
Temp Floor (degC)	-40.0
Temp Ceiling (degC)	130.0

☐ Inovonics

Inov Msg Port	10001
Fwd Addresses	

☐ Matrix

Event Msg Port	8089
DENY Limit	3
DENY Interval	20
Unlock Pulse	5
Door Ajar Interval	100

COSEC or Panel Server

Address	10.129.1.131
Username	sa
Password	*****
Panel Doors	

[Delete Devices](#) [Import Devices](#)

[Restore Defaults](#) [Save Changes](#)

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Every type group box has an enable/disable checkbox and one or more config settings. Details of these settings are covered in various technical notes:

- STN-WebRelay-*
- STN-MonnitGateways
- STN-XTendCall
- STN-SecurAlert

5.3 Workflow > Sensor Grid > Sensor Control

A number of default configuration settings related to sensors and inputs from external systems can be found in the `Sensor Control` page.

The most important setting is the checkbox to enable raising a signal when a device goes missing or is found. The amount of time before a device is considered “missing” is usually set in the `Sensor Types` page for that device type.

The screenshot shows the 'Sensor Control' page in the ICON Signals web interface. The top navigation bar includes the 'ICON Signals' logo, a home icon, and dropdown menus for 'Admin', 'PBX', 'Notification', and 'Workflow'. A 'Logout' link is in the top right. The main heading is 'Sensor Control' with the subtitle 'default params and other settings'. On the left is a sidebar menu with 'plex1' at the top, followed by 'Sensor Grid', 'Sensor Types', 'Sensor Gateways', 'Configuration', 'System Status', 'Change Log', and 'Online Docs'. The main content area is divided into three panels. The first panel, 'Registration Required?', contains a checkbox 'Only raise signals for 'registered' sensor devices'. The second panel, 'Missing Device Configuration', has a checked checkbox 'Raise Signal on Missing/Found Device' and three input fields: 'Missing Analog Sensor' with value '1440', 'Missing Pendant' with value '1440', and 'Missing Sensor' with value '1440'. The third panel, 'Battery Parameters', includes a description 'Low Battery threshold, for sensors providing voltage information.', a '% Voltage' label, and a dropdown menu set to 'Strict (5% below nominal)'. Below this is a 'Sensor Report Email' section with 'Time to Send' set to '11:32', 'Days to Send' set to 'Daily', and a 'Recipients' field with a redacted email address. At the bottom right are 'Restore Defaults' and 'Save Changes' buttons. The footer text is 'ICON Signals | © 2018-2021 ICON Voice Networks'.

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5.4 Workflow > Sensor Grid > Sensor Aliases

Sensor Aliases are used in combination with channel signals to give meaningful names to individual inputs. For a contact closure device with a large number of inputs (buttons), we want to know which button was pressed when sending notification messages.

In the figure below we have assigned aliases to channels 2, 3 and 8 for a WebRelay X-400 with 8 digital inputs.

Sensor Aliases assign names to individual device inputs

AliasID ↑	ChannelNo	Name	EDIT	COPY	DELETE
SD8120045155-2	2	Front Door	EDIT	COPY	DELETE
SD8120045155-3	3	Side Door	EDIT	COPY	DELETE
SD8120045155-8	8	Basement Door	EDIT	COPY	DELETE
SD8180054640-1	1	Channel-1	EDIT	COPY	DELETE
SD8180054640-2	2	Channel-2	EDIT	COPY	DELETE
SD8180054640-3	3	Channel-3	EDIT	COPY	DELETE
SD8180054640-4	4	Channel-4	EDIT	COPY	DELETE
SD8180054640-5	5	Channel-5	EDIT	COPY	DELETE
SD8180054640-6	6	Cafeteria6	EDIT	COPY	DELETE
SD8180054640-7	7	Channel-7	EDIT	COPY	DELETE

Page 1 of 2 | 10 | View 1 - 10 of 13

+ ADD

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Channel Signals are enabled for the device.

Signals Technical Overview

Details for WR-8x0 0045155 (serial: 0045155)

InfoAlarmsHistoryIdentParamActionsConfigAdv

Device Parameters

Missing Minutes0

Escalation0

Escalation Limit0

Escalation Resend0

Temperature ModeNative

Channel Hide OptionsShow All

☐ Registered

☒ Channel Signals

☐ Has Sticky Alarm

☐ NonConfirmable

Adv Params

[ref]

added_configs: use_one

Restore Defaults

Update

Close

Rules have been created to send a Rainbow message when the device enters or leaves alarm state (rule 2) and when an individual channel enters or leaves alarm state (rule 3).

Note: the device enters alarm state when is has at least one alarming input and leaves alarm state when it has no alarming inputs.

ICON SignalsAdminPBXNotificationWorkflowLogout

Rule List

plex1

Signal EventsCamerasRelaysSensor AliasesScriptsConfiguration

+ NEW RULE

RENUMBER

SETTINGS

Page 1 of 530

View 1 - 30 of 147

Rule	Expression	Description	EDIT	DELETE
1	WR-(ON OFF)-CH[0-9]+-%WR-32x0	X-400 w/ 32 inputs	EDIT	DELETE
2	WR-(ON OFF)-%WR-8x0	X-400 w/ 8 inputs	EDIT	DELETE
3	WR-(ON OFF)-CH[1-8]-%WR-8x0	X-400 w/ 8 inputs	EDIT	DELETE
4	E911-2893		EDIT	DELETE
5	UserAck		EDIT	DELETE

Rule 3: WR-(ON|OFF)-CH[1-8]-%WR-8x0

Main SMS Voice Email Rainbow T2S Actions Feedback Advanced

Rainbow Notifications

Recipients #grp #loc

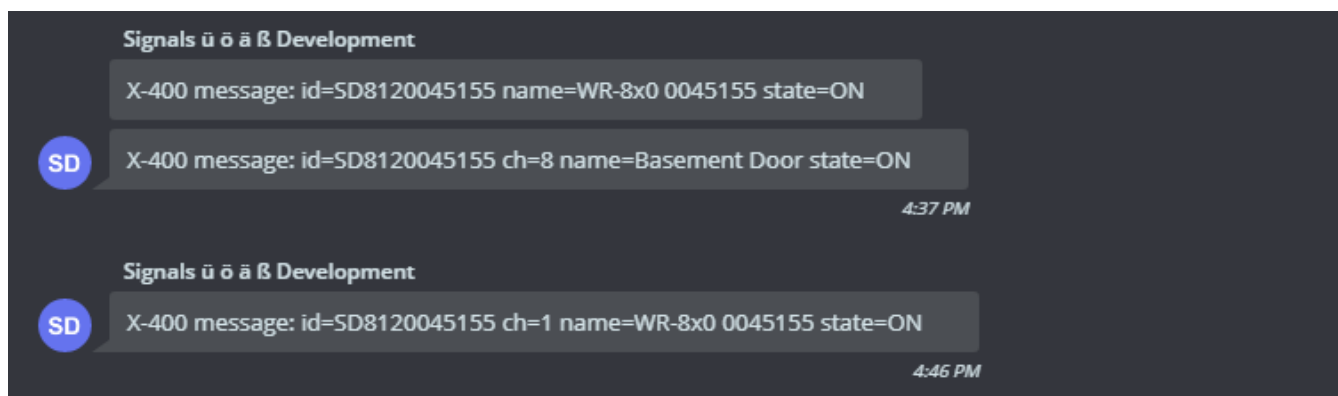
#grp.rbw.dev

Message samples

X-400 message: id={id} ch={ch} name={name} state={state}

Cancel Update

Closing the channel 1 and channel 8 contacts sends the following Rainbow messages.



The X-400 device is named WR-8x0 0045155. Rule 2 is executed when the device enters/exits alarm state and replaces the {name} variable with the device name.

Rule 3 is a “channel rule” and is executed when an I/O channel enters/exits alarm state for a device with a name starting with WR-8x0. The {name} variable is replaced with the alias value for that channel if it exists.

The CH8 contact was closed at 4:37 PM and resulted in both rules being executed since the X-400 was not already in alarm state. An alias of ‘Basement Door’ was defined for CH8, so it appears as the {name} value in the message.

The CH1 contact was closed at 4:46 PM. Rule 2 was not executed since the device was already in alarm state. Rule 3 was executed, but since no alias is defined for CH1, the device name was used as the {name} value in the message.

More information about Sensor Aliases can be found in the X-400 technical note: STN-WebRelay-X400.

5.5 Workflow > Sensor Grid > Cameras

The **Cameras** page contains information about IP cameras which can be associated with sensor devices or location zones. Both the ID and Name fields can be up to 60 characters in length. The ID value can consist of alphanumeric, hyphen and underscore characters.

Cameras

ID	Name	Make	IP Address	DXName	VIEW	EDIT	DELETE
CAM82	Engr-Conf	Axis	10.129.0.82		VIEW	EDIT	DELETE
CAM82Extern	CAM82Extern	Axis	10.129.0.82		VIEW	EDIT	DELETE
CAM82Local	CAM82Local	Axis	10.129.0.82		VIEW	EDIT	DELETE
CAM83	Switch-Room	Axis	10.129.0.83		VIEW	EDIT	DELETE
CAM83Extern	CAM83Extern	Axis	10.129.0.83		VIEW	EDIT	DELETE
CAM83Local	CAM83Local	Axis	10.129.0.83		VIEW	EDIT	DELETE

Page 1 of 1 | 10 | View 1 - 6 of 6

+ ADD

5.6 Workflow > Sensor Grid > Relays

Relays is an optional page which shows the current state of relays for WebRelay devices configured in the table.

ih-signals

Sensor Grid

Scripts

Configuration

System Status

Change Log

Online Docs

Relays

SETTINGS

RelayID	RelayNo	Name	Device Type	IP Address	RelayState		
SD8030033E82-1	1	WebRelayLab	WR-X301	10.129.0.176	0	EDIT	DELETE
SD8030033E82-2	2	WebRelayLab	WR-X301	10.129.0.176	0	EDIT	DELETE

Page 1 of 1 10 View 1 - 2 of 2







ADD

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5.7 Workflow > Sensor Types > Sensor Gateways

Monnit gateways are configured in the Sensor Types > Sensor Gateways page. ICON Signals records the latest gateway status message received from each gateway and can raise a MISSING or FOUND signal.

This is important because we want to notify about a missing gateway instead of simply reporting as missing all of the sensors that were reporting to that gateway.

 **ICON Signals**  Admin  PBX  Notification  Workflow  Logout

Sensor Gateways

current status of sensor device gateways

plex1

- Sensor Grid
- Sensor Types
- Configuration
- System Status
- Change Log
- Online Docs

ID#	Name	Type	Status
191991	GW-191991	Ethernet_3_0	
973274	GW-973274	Ethernet_4_0	2021-01-29T16:55:17 rcvd event 0

Page 1 of 1 10 View 1 - 2 of 2

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5.8 Workflow > Rule List

The Rule List page shows an ordered list of rule expressions and action scripts. When a signal is raised due to an incoming sensor event or other data, the name of that signal is checked against the rule expressions. If a match is found, ICON Signals starts a JavaScript interpreter to execute the associated action script.

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Logout

Rule List

plex1

- Signal Events
- Cameras
- Relays
- Sensor Aliases
- Scripts
- Configuration
- Change Log
- Online Docs

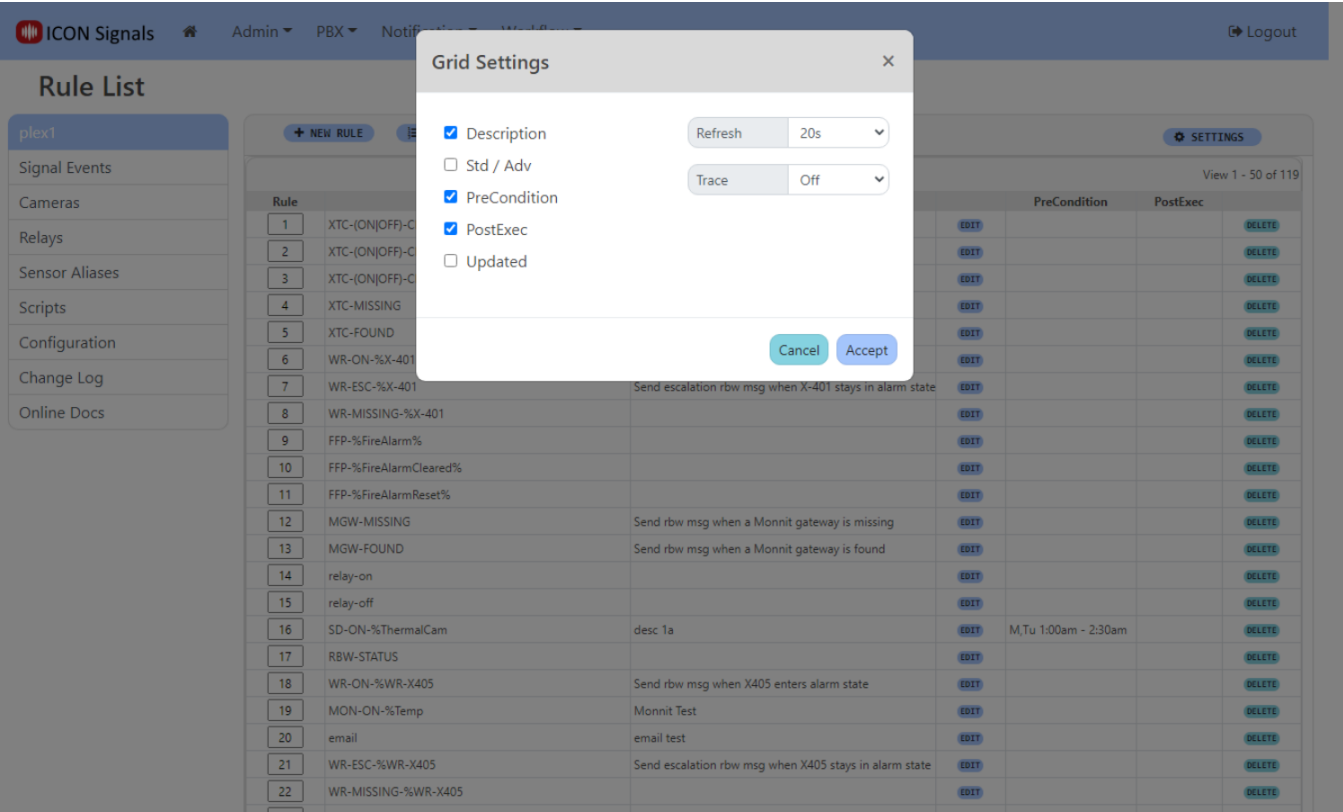
+ NEW RULE
RENUMBER
SETTINGS

Page 1 of 3 50
View 1 - 50 of 119

Rule	Expression	Description		PreCondition	PostExec	
1	XTC-(ON OFF)-CH2	EMERGENCY	EDIT			DELETE
2	XTC-(ON OFF)-CH3	Fire Alarm	EDIT			DELETE
3	XTC-(ON OFF)-CH		EDIT			DELETE
4	XTC-MISSING	XTendCall Server Missing	EDIT			DELETE
5	XTC-FOUND	XTendCall Server Found	EDIT			DELETE
6	WR-ON-%X-401	Send rbw msg when X-401 enters alarm state	EDIT			DELETE
7	WR-ESC-%X-401	Send escalation rbw msg when X-401 stays in alarm state	EDIT			DELETE
8	WR-MISSING-%X-401		EDIT			DELETE
9	FFP-%FireAlarm%		EDIT			DELETE
10	FFP-%FireAlarmCleared%		EDIT			DELETE
11	FFP-%FireAlarmReset%		EDIT			DELETE
12	MGW-MISSING	Send rbw msg when a Monnit gateway is missing	EDIT			DELETE
13	MGW-FOUND	Send rbw msg when a Monnit gateway is found	EDIT			DELETE
14	relay-on		EDIT			DELETE
15	relay-off		EDIT			DELETE
16	SD-ON-%ThermalCam	desc 1a	EDIT	M,Tu 1:00am - 2:30am		DELETE
17	RBW-STATUS		EDIT			DELETE
18	WR-ON-%WR-X405	Send rbw msg when X405 enters alarm state	EDIT			DELETE
19	MON-ON-%Temp	Monnit Test	EDIT			DELETE
20	email	email test	EDIT			DELETE
21	WR-ESC-%WR-X405	Send escalation rbw msg when X405 stays in alarm state	EDIT			DELETE
22	WR-MISSING-%WR-X405		EDIT			DELETE

Signals Technical Overview

The Settings button opens a dialog to configure which columns are shown in the grid as well as *Trace* options.



Signals Technical Overview

Trace Mode is used to manually execute a test rule and is commonly used to verify that notification methods (SMS, Email, Rainbow) are working correctly.

ICON Signals

Admin ▾ PBX ▾ Notification ▾ Workflow ▾

Logout

Rule List

plex1

Signal Events

Cameras

Relays

Sensor Aliases

Scripts

Configuration

Change Log

Online Docs

+ NEW RULE

RENUMBER

Page 1 of 3

View 1 - 50 of 119

Rule	Expression	Description	PreCondition	PostExe
1	XTC-(ON OFF)-CH2	EMERGENCY	EDIT	DELETE
2	XTC-(ON OFF)-CH3	Fire Alarm	EDIT	DELETE
3	XTC-(ON OFF)-CH		EDIT	DELETE
4	XTC-MISSING	XTendCall Server Missing	EDIT	DELETE
5	XTC-FOUND	XTendCall Server Found	EDIT	DELETE
6	WR-ON-%X-401	Send rbw msg when X-401 enters	EDIT	DELETE
7	WR-ESC-%X-401	Send escalation rbw msg when X-4	EDIT	DELETE
8	WR-MISSING-%X-401		EDIT	DELETE
9	FFP-%FireAlarm%		EDIT	DELETE
10	FFP-%FireAlarmCleared%		EDIT	DELETE
11	FFP-%FireAlarmReset%		EDIT	DELETE
12	MGW-MISSING	Send rbw msg when a Monnit gate	EDIT	DELETE
13	MGW-FOUND	Send rbw msg when a Monnit gate	EDIT	DELETE
14	relay-on		EDIT	DELETE
15	relay-off		EDIT	DELETE
16	SD-ON-%ThermalCam	desc 1a	EDIT	DELETE
17	RBW-STATUS		EDIT	DELETE
18	WR-ON-%WR-X405	Send rbw msg when X405 enters a	EDIT	DELETE
19	MON-ON-%Temp	Monnit Test	EDIT	DELETE
20	email	email test	EDIT	DELETE
21	WR-ESC-%WR-X405	Send escalation rbw msg when X4	EDIT	DELETE
22	WR-MISSING-%WR-X405		EDIT	DELETE

SETTINGS

RUN TEST

17:39:10 Cron END Signal Task

Id=32098

17:39:10 Cron Cron 17 39

17:39:10 Cron START Signal Task

Id=32098 Expr=Cron 39 17 * * *

15:19:46 WR-ON-%X-401 004C1FE% END Signal

Task Id=23016

15:19:46 WR-ON-%X-401 004C1FE%

rainbow.send success

15:19:46 WR-ON-%X-401 004C1FE% START

Signal Task Id=23016 Expr=WR-ON-%X-401

17:39:25 Cron END Signal Task Id=507

17:39:25 Cron Cron 17 39

Clicking the Edit link for a rule opens the rule dialog. Basically this dialog is a “rule builder”. After changing fields in one or more tabs, the user clicks the Update button and a rule action script is generated and stored in the ICON Signals database.

Rule 18: WR-ON-%WR-X405

MainSMSVoiceEmailRainbowT2SActionsFeedbackAdvanced

Rule Name and Type

Disable Rule

Sample Expressions

Expression

WR-ON-%WR-X405

Alert Type

Environmental Sensor

Description

Send rbw msg when X405 enters alarm state

PreCondition

PreCondition Helper

☐ Clone On Update

Rule Summary

Notifications	Rainbow
Special Actions	
PostExecute	
TestMode Action	Normal Execution
Created	2020-06-04 15:18:30
Updated	2020-12-14 16:24:25

Cancel

Update

16	SD-ON-%ThermalCam	desc 1a	EDIT	more recent - 2:30am	DELETE
17	RBW-STATUS		EDIT		DELETE
18	WR-ON-%WR-X405	Send rbw msg when X405 enters a	EDIT		DELETE
19	MON-ON-%Temp	Monnit Test	EDIT		DELETE
20	email	email test	EDIT		DELETE
21	WR-ESC-%WR-X405	Send escalation rbw msg when X40	EDIT		DELETE
22	WR-MISSING-%WR-X405		EDIT		DELETE

5.8.1 Rule Dialog: Main tab

The `Main` tab has the following fields:

Expression	Signal names for raised signals are matched against this <i>regular expression</i> .
Alert Type	Basic template code used to generate the rule action script.
Description	Simple description to be displayed in the Rule List grid.
PreCondition	When this rule is matched with a signal, a PreCondition can be set to either cancel the match or rename (redirect) the signal to match with another rule further down the rule list.

The right side of the `Main` tab provides a quick look of which notification methods and special action scripts are currently configured in this rule.

Rule 97: D3-LOCKDOWN

Main SMS Voice Email Rainbow T2S Actions Feedback Advanced

Rule Name and Type

Disable Rule Sample Expressions

Expression D3-LOCKDOWN

Alert Type Lockdown

Description

PreCondition PreCondition Helper

☐ Clone On Update

Rule Summary

Notifications	Rainbow
Special Actions	webrelay-demo3-on, vss-iconhq
PostExec	
TestMode Action	Normal Execution
Created	2019-02-22 15:29:46
Updated	2020-02-20 10:44:04

Cancel Update

The `Disable Rule` button is a toggle which adds or removes a prefix to the rule expression to prevent matching against any incoming signals.

The image contains two screenshots of a web interface for configuring rules. Both screenshots show a top navigation bar with tabs: 'Main', 'SMS', 'Voice', 'Email', 'Rainbow', 'T2S', 'Actions', and 'Fe'. Below the tabs is a section titled 'Rule Name and Type'. In the first screenshot, the 'Disable Rule' button is highlighted with a green box. The 'Expression' field contains 'D3-LOCKDOWN' and the 'Alert Type' dropdown is set to 'Lockdown'. In the second screenshot, the 'Enable Rule' button is highlighted with a green box. The 'Expression' field now contains '%-D3-LOCKDOWN' and the 'Alert Type' dropdown remains 'Lockdown'. A 'Sample Expressions' button is visible in both screenshots.

When an incoming signal is matched against a rule expression, the application checks to see if a `PreCondition` exists for that rule. If it does, then one of several things will occur:

- The effective signal name is changed and the rules engine continues searching the rule list. This is called a *redirect*. In this case, all other details of the current rule are inconsequential because it will not be executed.
- If the terms of the precondition are not met, then the match is ignored and the rules engine continues searching the rule list. For example, when the current day/time falls outside of the range of a *days+times* precondition.

- The signal is transferred to another ICON Signals instance. This is called a *transfer*. Similar to a *redirect*, all other details of the current rule are inconsequential because it will not be executed.

The PreCondition Helper button opens a dialog to select a precondition type and fill in type-specific data fields. By far the most common preconditions are Redirect and Days+Times.

Rule 52: Ringing-2071

Main SMS Voice Email Rainbow T2S Actions Feedback Advanced

Rule Name and Type

Disable Rule Sample Expressions

Expression Ringing-2071

Alert Type Lockdown

Description

PreCondition Redirect: D3-LOCKDOWN

PreCondition Helper

☐ Clone On Update

Rule Summary

Notifications	
Special Actions	
PostExecute	
TestMode Action	Normal Execution
Created	2020-05-14 15:37:05
Updated	2021-05-19 10:47:12

Cancel Update

The figure below shows a rule with rule expression Ringing-2071. When ICON Signals receives a ringing event for extension (or virtual extension) 2071, it will raise a signal named Ringing-2071-{source number} which will match with this rule.

The PreCondition of Redirect:D3-LOCKDOWN will cause the signal name to be effectively renamed to D3-LOCKDOWN and match against the first rule with that expression further down the rule list.

Rule 52: Ringing-2071

MainSMSVoiceEmailRa

Rule Name and Type

ExpressionRinging-2071

Alert TypeLockdown

Description

PreConditionRedirect: D3-LOCKDOWN

☐ Clone On Update

PreCondition

Redirect: D3-LOCKDOWN

Redirect

Select a rule expression to use for redirection

D3-LOCKDOWN

CancelAccept

Updated

2021-05-19 10:47:12

CancelUpdate

Redirect preconditions can be used to funnel different types of signal inputs to a single set of rules. In this case, we might also have a contact closure “lockdown” button rule which also redirects to D3-LOCKDOWN.

92	D2-HELPKEY		EDIT			DELETE
93	%%-WR-ON-%%WebRelay-Demo3%	ALYSSA tests	EDIT	Redirect: D4-ALYSSA		DELETE
94	%%-WR-OFF-%%WebRelay-Demo3%	ALYSSA tests	EDIT			DELETE
95	WR-OFF-%%WebRelay-Demo3%		EDIT	Redirect: D3-CLEAR		DELETE
96	WR-ON-%%WebRelay-Demo3%		EDIT	Redirect: D3-LOCKDOWN		DELETE
97	D3-LOCKDOWN		EDIT	M,Tu,W,Th,F,Sa,Su 6:30am - 9:00pm	Continue	DELETE
98	D3-LOCKDOWN		EDIT	M,Tu,W,Th,F,Sa,Su 6:30am - 9:30pm	Continue	DELETE
99	D3-LOCKDOWN	turn webrelay on, send vss alert	EDIT			DELETE
100	D3-LOCKOUT		EDIT	M,Tu,W,Th,F 6:30am - 9:30pm	Continue	DELETE

Page 2 of 4

50

View 51 - 100 of 163

One configuration field not on the `Main` tab but salient to this topic is `PostExecute`, which determines what happens once execution of this rule action script is completed. If `PostExecute` is set to the default value of 'None', then the rule execution task is finished. However, if `PostExecute` is set to 'Continue', the application continues searching the rule list for matches.

In the figure above, the first two D3-LOCKDOWN rules will be executed if the signal is raised during any day between 6:30am and 9:30pm local time. After each rule action script completes, the rule task continues processing and the third D3-LOCKDOWN rule is executed.

In a production environment, 'Days+Times' preconditions are often used to notify different groups on people during office hours and at other times.

The screenshot shows the configuration for Rule 97: D3-LOCKDOWN. The **PreCondition** tab is selected, displaying the following settings:

- Rule Name and Type:** D3-LOCKDOWN
- Expression:** D3-LOCKDOWN
- Alert Type:** Lockdown
- Description:**
- PreCondition:** M, Tu, W, Th, F, Sa, Su 6:30am - 9:00pm
- Days+Times:** Days+Times (dropdown)
- Days:** Mon, Tue, Wed, Thu, Fri, Sat, Sun (all checked)
- Start:** 6:30am (dropdown)
- End:** 9:00pm (dropdown)
- Buttons:** Cancel, Accept
- Summary:** MS, Email, Voice
- Continue PostExec:** (highlighted with a green arrow)
- Normal Execution:** 019-02-22 15:29:22
- Updated:** 2021-01-28 14:21:49
- Clone On Update:** ☐
- Bottom Buttons:** Cancel, Update

5.8.2 Rule Dialog: SMS, Email and Rainbow tabs

These three tabs are very similar. These examples will focus on the SMS tab.

Signals Technical Overview

Cell numbers can be directly added to the list of recipients for an SMS message, but we recommend using contact groups. The same idea applies to email addresses entered in the Email and Rainbow tabs.

The screenshot shows the 'Rule 97: D3-LOCKDOWN' configuration window with the 'SMS (Text) Notifications' tab selected. The 'Recipients' field contains the text: `#grp.number.d3-lockdown, #grp.number.sierrademo, 8175551212`. A green arrow points to the `#grp` and `#loc` buttons, with the text 'Click to select one or more groups'. The 'Message' field contains the text: `ATTENTION! LOCKDOWN IN EFFECT. Go to the nearest room, lock the door and follow LOCKDOWN procedures. {Originator Ext: {ext}} {[br] MAP: {map}}`. The 'Cancel' and 'Update' buttons are at the bottom right.

The screenshot shows the 'Rule 97: D3-LOCKDOWN' configuration window with the 'Groups' dialog open. The dialog lists the following groups: `d2-lockdown`, `d2-mobile`, `d3-e911`, `d3-environmental`, `d3-helpkey`, `d3-lockdown`, `d3-lockout`, `d3-mobile`, `d3-voicetest`, `d4-e911`, `d4-helpkey`, and `d4-lockdown`. The 'Cancel' and 'Select' buttons are at the bottom of the dialog. The background window shows the 'SMS (Text) Notifications' tab with the 'Recipients' field containing the text: `#grp.number.d3-lockdown, #grp.number.sierrademo, 8175551212` and the 'Message' field containing the text: `ATTENTION! LOCKDOWN IN EFFECT. Go to the nearest room, lock the door and follow LOCKDOWN procedures. {Originator Ext: {ext}} {[br] MAP: {map}}`.

5.8.3 Rule Dialog: Voice tab

The **Voice** tab configures recorded voice calls made by ICON Voice Call, a purpose-built Asterisk system which is integrated with ICON Signals. When recipient calls are made, pre-recorded voice files are played in the order configured in this tab.

Rule 98: D3-LOCKDOWN

Main SMS **Voice** Email Rainbow T2S Actions Feedback Advanced

Recorded Voice Call Notifications

Recipients #grp.ext #grp.nbr #loc.ext #loc.nbr

2265

Recording(s) to Play Recordings

silence/5, lockdown-d3

Recordings to play in sequence. silence/5 plays 5 seconds of silence at the start.

Caller Name LOCKDOWN

Caller Number

Loops 1

Retry Delay 30

Retries 3

Cancel Update

Click the 'Recordings' button to open a dialog with a list of available files.

Signals Technical Overview

The screenshot displays the configuration interface for 'Rule 98: D3-LOCKDOWN'. The 'Voice' tab is active, showing 'Recorded Voice Call Notifications'. The 'Recipients' field contains '2265'. The 'Recording(s) to Play' field contains 'silence/5, lockdown-d3'. The 'Caller Name' is set to 'LOCKDOWN'. The 'Recordings' modal is open, showing a list of recording options: ADMIN, AlertAssistMalabarMed2, AlertFrzDoorEvansCtr, AlertSarnoFrzDoor4, AlertTempOorSilverPalmFrig, AlertWaterDetPalmBayMedRm, BREAK-ROOM, BREAK, CLASSROOM, DOCTORS-OFFICE, FAMILY-VISITING, FEMALE, GREAT, and LAB. The modal has 'Cancel' and 'Select' buttons. The background interface has 'Cancel' and 'Update' buttons at the bottom right.

Rule 98: D3-LOCKDOWN

Main SMS Voice Email Ra

Recorded Voice Call Notifications

Recipients

2265

Recording(s) to Play

silence/5, lockdown-d3

Caller Name LOCKDOWN

Caller Number

Recordings

9

ADMIN

AlertAssistMalabarMed2

AlertFrzDoorEvansCtr

AlertSarnoFrzDoor4

AlertTempOorSilverPalmFrig

AlertWaterDetPalmBayMedRm

BREAK-ROOM

BREAK

CLASSROOM

DOCTORS-OFFICE

FAMILY-VISITING

FEMALE

GREAT

LAB

Cancel Select

ext #grp.nbr #loc.ext #loc.nbr

Recordings

1

30

3

Cancel Update

There are options to assign a caller name and number for the outgoing call and repeat the sequence of recordings several times during the call.

5.8.4 Rule Dialog: Actions tab

The **Actions** tab contains several process flow parameters and a list of *special action scripts* to be inserted into the overall rule script.

The parameters are:

PostExec	The PostExec setting indicates something to be done after a rule script completes execution. Currently the only supported PostExec value is 'Continue'..
TestMode Action	Indicates if this rule should be bypassed when ICON Signals is running in TestMode
Rule Period	Minimum interval between executions of this rule.
Rule Timeout	Watchdog timeout of this rule.

Rule 99: D3-LOCKDOWN

Main SMS Voice Email Rainbow T2S **Actions** Feedback Advanced

Rule parameters and Special Actions

PostExec: None

TestMode Action: Normal Execution

Rule Period: 30 sec

Rule Timeout: 1 min

Special Actions

Scripts

webrelay-demo3-on, vss-iconhq

Cancel Update

'Special Action' scripts are snippets of code inserted into the Rule script to add functionality not found in the normal configuration UI. For example, sending commands to WebRelay devices to turn relays on or off.

Signals Technical Overview

Rule 99: D3-LOCKDOWN

MainSMSVoiceEmailRainbowT2SActionsFeedbackAdvanced

Rule Name and Type

Disable RuleSample Expressions

Expression

D3-LOCKDOWN

Alert Type

Lockdown

Description

turn webrelay on, send vss alert

PreCondition

PreCondition Helper

☐ Clone On Update

Rule Summary

Notifications	Rainbow
Special Actions	webrelay-demo3-on, vss-iconhq
PostExecute	
TestMode Action	Normal Execution
Created	2019-02-22 15:29:46
Updated	2021-03-24 00:24:10

CancelUpdate

94

5.8.5 Rule Dialog: Feedback tab

The **Feedback** tab contains properties to log a debug message when the rule is executed and send an alert to external systems configured to receive them.

'ACK Codes' and 'Help Codes' fields are used to process messages received in response to SMS notifications. When ICON Signals detects a valid ACK or Help code, it raises a new signal names `UserAck-{cell-number}` or `UserNeedsHelp-{cell-number}`. Rules beginning with the expression `UserAck` and/or `UserNeedsHelp` can be written to notify appropriate personnel.

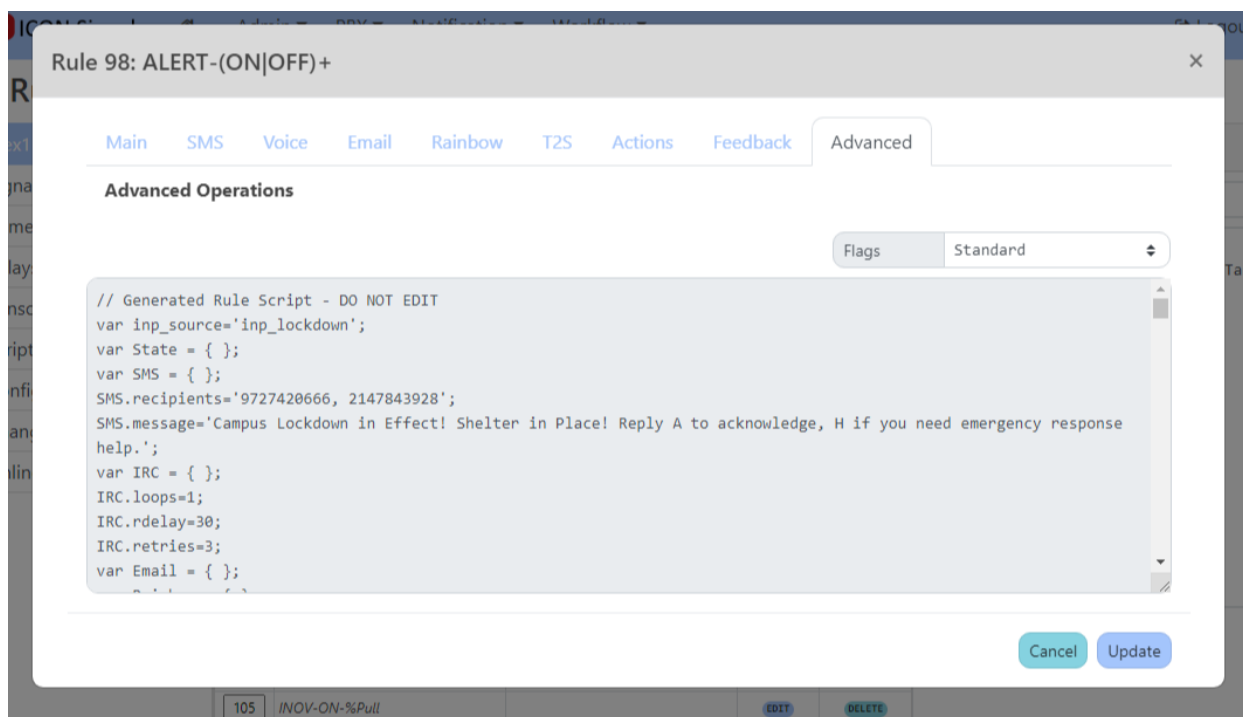
The screenshot shows the 'Feedback' tab of a rule configuration dialog for 'Rule 98: ALERT-(ON|OFF)+'. The dialog has several tabs: Main, SMS, Voice, Email, Rainbow, T2S, Actions, Feedback (selected), and Advanced. Under the 'Feedback-related Parameters' section, there are three input fields: 'ACK Codes' with the value 'A,1', 'Help Codes' with the value '7,H', and 'Debug Message' with the value 'Alert-(ON|OFF)+ triggered'. To the right of these fields is a checkbox labeled 'Send to Receiving Systems' which is currently unchecked. At the bottom right of the dialog are 'Cancel' and 'Update' buttons. The background shows a table with columns for rule ID, name, and actions (EDIT, DELETE).

Rule ID	Rule Name	Actions
99	test-sms	<button>EDIT</button> <button>DELETE</button>

5.8.6 Rule Dialog: Advanced tab

This tab shows the actual rule action script that generated from the various configured properties in the other tabs.

It is *possible* to change the flag and modify the rule script by hand, but in practice it is never done. Custom scripting needs are handled by writing a special action script (basically a code snippet) and including it in the `Actions` tab.



5.9 Workflow > Rule List > Scripts

Special Action Scripts (henceforth referred to as “Scripts”) are code snippets inserted into the overall rule script when it is generated. These scripts usually consist of a single JavaScript function call to perform a specific action such as:

- Turning a relay on or off
- Sending a command to an Access Control System to lock or unlock a door
- Sending an alert message to a Video Management System

Special Action Scripts used in rules to control relays and perform other actions

☐ Show Code Fragments

Name	Size	Modified
vss-lockdown	137	2020-02-19 11:27:08
vss-lockdown2	140	2020-03-24 15:08:22
webrelay-demo1-off	155	2019-03-04 11:44:06
webrelay-demo1-on	154	2019-03-04 11:43:28
webrelay-demo1-pulse10	166	2019-08-21 13:59:42
webrelay-demo2-off	182	2019-07-03 15:41:15
webrelay-demo2-on	181	2019-07-03 15:41:29
webrelay-demo2-pulse10	193	2019-07-03 15:41:51
webrelay-demo3-off	155	2019-07-19 13:48:59
webrelay-demo3-on	154	2019-07-19 13:49:10

Page 2 of 3 View 11 - 20 of 23

+ ADD

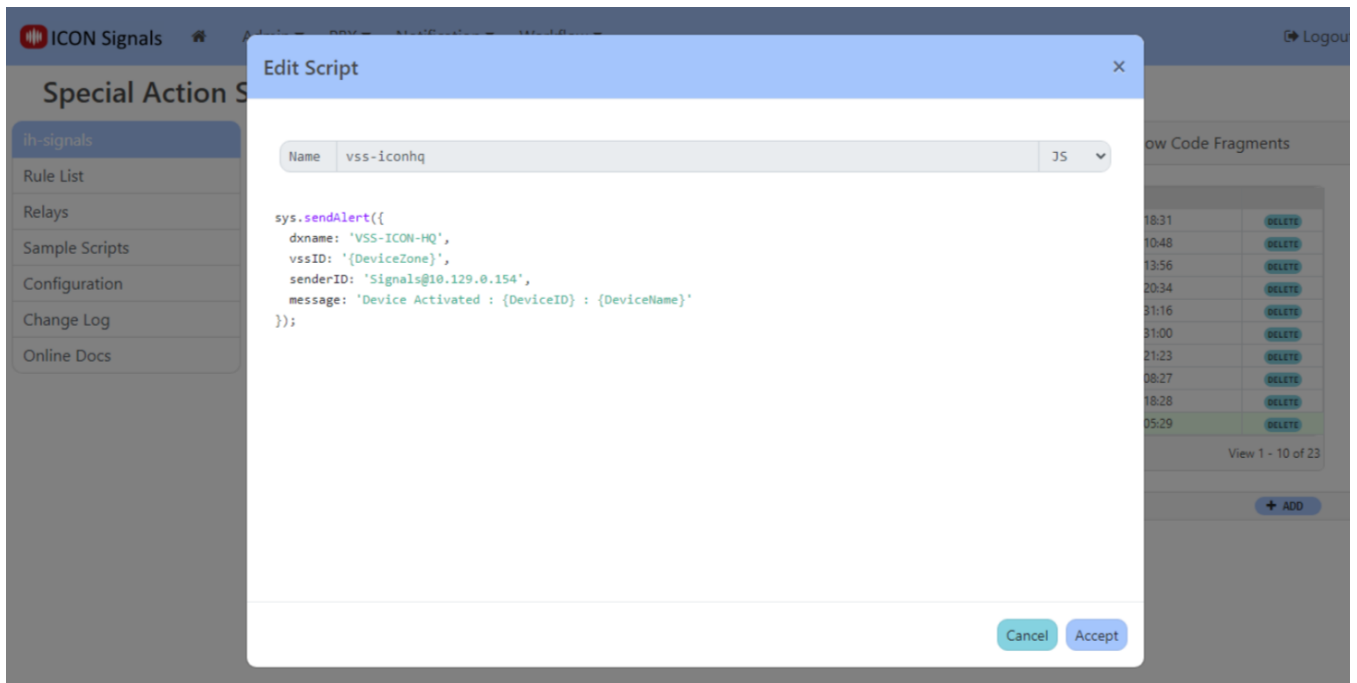
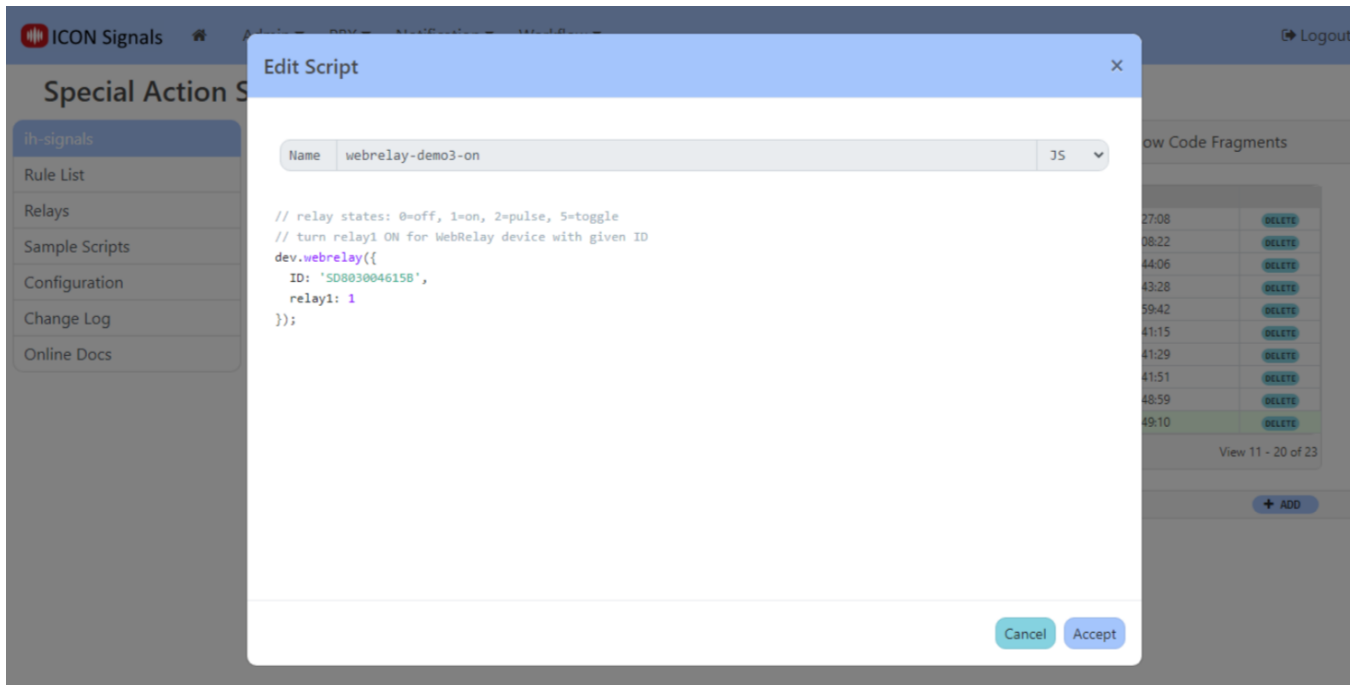
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Example scripts are shown in figures below. Some of the parameters can effectively be variables ({DeviceName}, {DeviceZone}, etc.). Details will be covered in a future Signals Technical Note.

One other note:

When a script is edited and saved, every rule that uses that script is re-generated automatically.

Signals Technical Overview



5.10 Workflow > Integrations

Integrating with external systems often brings a need for new configuration data or “data associations”.

Device IDs from the other system may need to be transformed into a format that ICON Signals understands. Data may be needed to tell Signals what to do with specific inputs from the external system.

The problem with using standalone CSV / JSON / XML files for these purposes is that they are tedious to install, update and maintain.

The *Integration Table* is a general purpose database table used to store these types of data. Rows can be imported from a CSV file, edited within the Signals UI, and saved within the Signals database archive as part of a normal backup.

The screenshot shows the 'Integrations' section of the ICON Signals UI. The header bar includes the ICON Signals logo and navigation links for Admin, PBX, Notification, and Workflow. A 'Log out' button is in the top right. The 'Integrations' section title is followed by the subtitle 'tabular data associated with custom applications'. On the left, a sidebar lists 'site: ih-signals', 'Intgr Names', 'Configuration', 'Change Log', and 'Online Docs'. The main area displays a table with columns: Name, C0, C1, C2, C3, C4, and two action buttons (EDIT and DELETE). The table contains 20 rows of data, including phone numbers, names, and system identifiers. At the bottom of the table, there is a pagination control showing 'Page 1 of 10' and a 'View 1 - 20 of 182' indicator. Below the table, there are buttons for 'IMPORT', 'DELETE', and '+ ADD'.

Name	C0	C1	C2	C3	C4	EDIT	DELETE
nbr_name	+12146294552	Hiro Takahashi	2020-08-17T12:23:34			EDIT	DELETE
nbr_name	+12183685175		2020-10-15T15:03:49			EDIT	DELETE
nbr_name	+13256693995	JB	2020-09-29T14:59:35			EDIT	DELETE
nbr_name	+13257215200		2020-09-29T15:06:56			EDIT	DELETE
nbr_name	+14693554416		2020-08-07T15:44:24			EDIT	DELETE
nbr_name	+18172332130		2021-01-26T16:06:54			EDIT	DELETE
nbr_name	+18178257857	David C	2021-01-26T15:54:40			EDIT	DELETE
nbr_name	+18324285454		2020-08-14T09:19:28			EDIT	DELETE
nbr_name	+19722367999	iot1	2021-01-27T20:20:00			EDIT	DELETE
nbr_name	+19727420666	RusToo	2021-01-26T16:00:01			EDIT	DELETE
nbr_name	+19728773268		2020-08-14T09:19:30			EDIT	DELETE
itq_m21_bubble	+13259999510	Tel.Unlim. DID Txt Demo				EDIT	DELETE
itq_m21_bubble	+19726561330	IH M21 Sales Support				EDIT	DELETE
itq_m21_bubble	+19726561331	IH M21 Tech Support				EDIT	DELETE
ascom_st_marys	7111	URGENT 11	U1 ROOM 1A	STAT UNIT 1 ROOM 1		EDIT	DELETE
ascom_st_marys	7112	URGENT 11	U1 ROOM 1B	STAT UNIT 1 ROOM 1		EDIT	DELETE
ascom_st_marys	7113	URGENT 11	U1 ROOM 1C	STAT UNIT 1 ROOM 1		EDIT	DELETE
ascom_st_marys	7114	URGENT 11	U1 ROOM 1D	STAT UNIT 1 ROOM 1		EDIT	DELETE
ascom_st_marys	7115	URGENT 11	U1 ROOM 1 BATH	STAT UNIT 1 ROOM 1		EDIT	DELETE
ascom_st_marys	7121	URGENT 12	U1 ROOM 2A	STAT UNIT 1 ROOM 2		EDIT	DELETE

The data table used for integrations has 10 variable-length character (varchar) columns named C0 thru C9. Column C0 is combined with the integration name to form a unique index.

The screenshot shows the 'Edit Data Row' dialog box in the ICON Signals interface. The dialog has a title bar 'Edit Data Row' and a close button. It contains a table with 10 columns labeled C0 through C9. The data entered is as follows:

Column	Value
C0	ascom_st_marys
C1	7111
C2	URGENT 11
C3	U1 ROOM 1A
C4	STAT UNIT 1 ROOM 1
C5	
C6	
C7	
C8	
C9	

At the bottom of the dialog are 'Cancel' and 'Accept' buttons. The background shows the 'Integrations' section of the interface, with a list of integration names and a table of data fields.

At the time of this writing:

- C0 has a maximum length of 160 characters.

- C1-C3 have a maximum length of 256 characters.

- C4-C9 have a maximum length of 128 characters.

Use of this table is a reasonable approach for integrations involving a few hundred or a few thousand rows of data. If more data is involved, then a custom database table should be created for that integration effort.

5.11 Workflow > Integrations > Intgr Names

Integration names are entered in a separate table, as shown in the figure below.

Admin ▾ PBX ▾ Notification ▾ Workflow ▾
Logout

Integration Names

labels associated with data for custom applications

site: plex1

- Intgr Data
- Configuration
- Change Log
- Online Docs

Name	Description	EDIT	DELETE
ascom	generic ascom	EDIT	DELETE
two		EDIT	DELETE
ascom_st_marys		EDIT	DELETE
sms-loc		EDIT	DELETE
itq_m21_bubble	Inteliquent Many-to-1 Bubble integration	EDIT	DELETE
nbr_name		EDIT	DELETE
tw_m21_bubble	Twilio many-to-one DID-to-bubble	EDIT	DELETE
secur-device-id	SecurAlert DeviceId integration	EDIT	DELETE
secur-locgrp-id	SecurAlert LocationGroupID integration	EDIT	DELETE
secur-name-regex	SecurAlert Device Name conversion	EDIT	DELETE
fusion_fire	Fusion Fire Panel Integration	EDIT	DELETE
xtend-device-id	XTendCall DeviceId integration	EDIT	DELETE
xtend-locgrp-id	XTendCall LocationGroupID integration	EDIT	DELETE
xtend-name-regex	XTendCall Device Name conversion	EDIT	DELETE

Page 1 of 1
20
View 1 - 14 of 14

+ ADD

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6.0 Signals Technical Notes

“Technical Notes” are additional stand-alone documents that cover a single ICON Signals topic or feature in more detail. Here is a current list of available documents. All documents are available in MS-Word (.docx) and PDF (.pdf) format.

STN-Licensing	Covers all aspects of licensing with Signals.
STN-Datasheet	One-page data sheet with memory and disk footprint.
STN-Overwatch	Describes Overwatch capabilities. Work in progress.
STN-WebRelay-X405	ControlByWeb X405 Temperature sensor
STN-DeviceTemplates	Details how to have one device serve as a configuration template for others.
STN-Monnit-SNMP	SNMP-based Monnit sensor functionality. (Deprecated.)
STN-DeviceTypes	Type ID details for Signals DeviceIDs. Based on Monnit types.
STN-WebRelay-DryContact	ControlByWeb X-301/X-401 devices
STN-WebRelay-XW110	ControlByWeb Wireless (Wifi) Temp sensor
STN-WebRelay-XW111	ControlByWeb Wireless (Wifi) Digital Inputs sensor
STN-AlarmState	Details about Signals AlarmState bits
STN-SecurAlert	Describes the Signals integration with the SecurAlert system.
STN-MonnitGateways	Setting up Monnit sensor gateways for use with Signals.
STN-RainbowBubbleHandlers	Details about how Signals is integrated with Rainbow

	bubbles.
STN-XTendCall	Describes the Signals integration with the XTendCall system.
STN-PortsUsed	Details about which TCP ports ICON Signals uses.
STN-FirewallWhitelist	Describes the outside hosts needed by ICON Signals.
STN-WebRelay-X400	ControlByWeb X-400 and expansion modules. Only contact closure / digital inputs at this time.
STN-Escalations	Details about “escalations” within ICON Signals when a sensor remains in alarm state or missing.

- END -