

REFCON 6 Quick Introduction



Ships version: 4002-020
2015.08.31 – subject to change without notice
www.EmersonClimate.com/TransportationSolutions



Customer Benefits



Improved cargo quality

Alerts you of problems before potential cargo damage



Reduced operational costs

Eliminates time-consuming manual inspections



Improved personnel safety

Minimizes time spent in reefer areas or bays



Improved documentation

Records reefer container data and generates reports automatically



Reduced human errors

Verifies planning parameters and alerts you of any mismatch



Energy savings & CO₂ reductions

Minimizes cargo loss in cold supply chain and makes overall processes and operations more efficient

Benefits



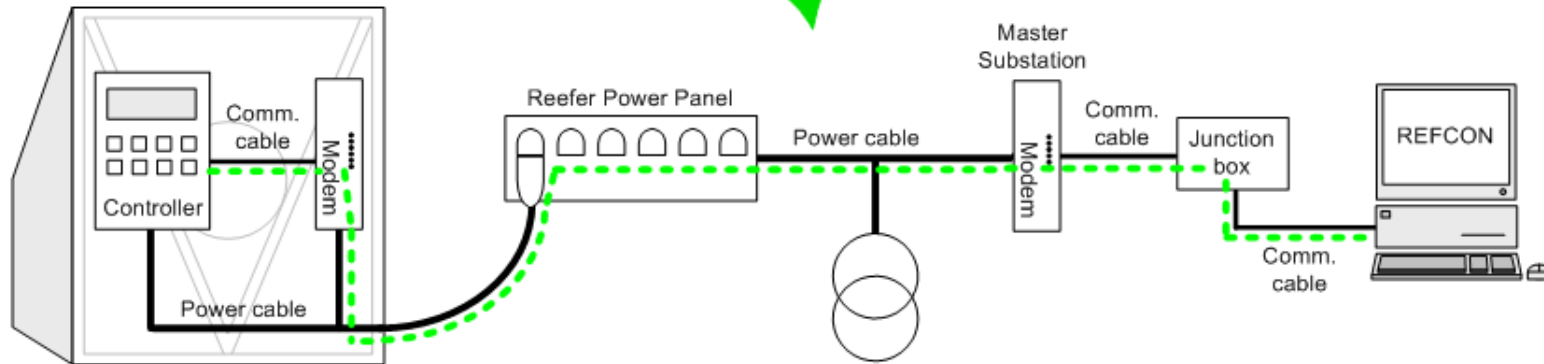
How does it work



How to use

Communication path must be ok all the way

Communication path OK ✓



To have the full benefits of your REFCON system, it is very important that the highest possible number of reefer containers are communicating on the PCT (Power Cable Transmission).

To achieve this, the electronics – modem, controller etc – on every single container must be maintained, so you have a perfect communication path.

Check the Performance Bar and related lists in REFCON for containers not communicating correctly.

Good advice

Check how many spare RMM units you have onboard. It might be necessary to increase this number in order for you to have more containers communicating.

Benefits



How does it work



How to use

Components in a REFCON system



ISO 10368 modems installed in containers



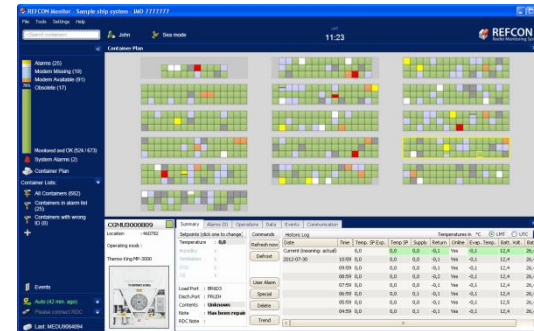
Existing power distribution



Master Substation



RS-485



REFCON Monitor, user interface

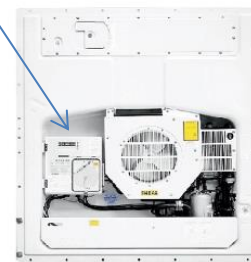
Thermo King

Carrier

Daikin

Mitsubishi

Starcool



Benefits

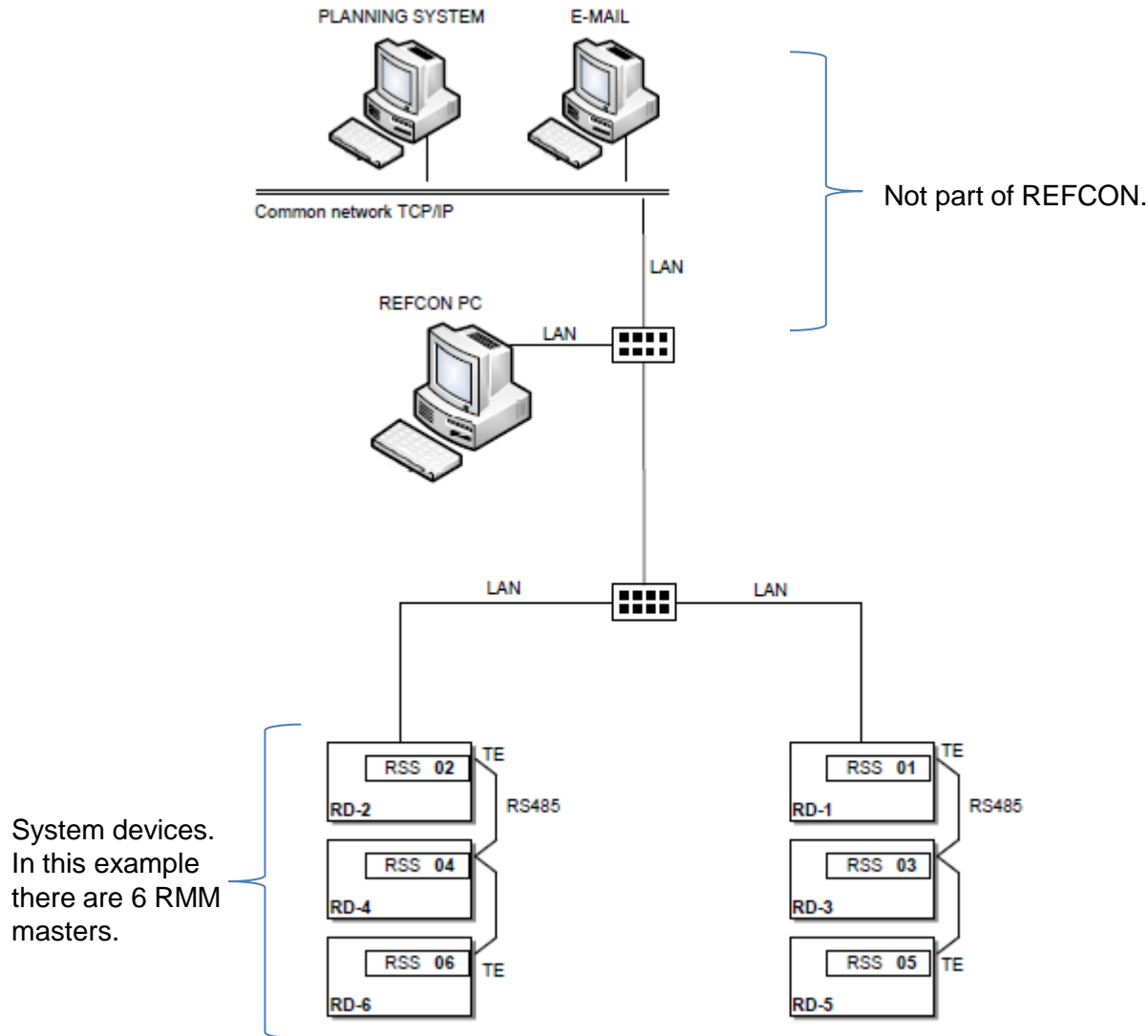


How does it work



How to use

Typical vessel layout



Good advice

If your REFCON is connected to the vessel main alarm system, you should at least once per year verify the alarm output by closing down the REFCON program.

Benefits



How does it work



How to use

REFCON 6 overview

Labels in the image:

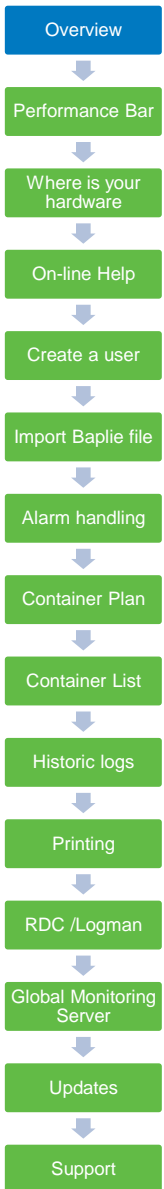
- Side Panel
- Container quick search
- User
- Handling mode
- Current time
- Minimize
- Container Alarms (if any)
- Performance Bar
- System Alarms (if any)
- Select view
- Add Container List
- Planning data status / import
- RDC
- PCT indicator
- List and Container plan views
- Minimize
- Container Details

Table: Container Alarm Summary

Location	Origin	Text	Alarms	Ini...	Time UTC
Containers having alarms (Count=7)					
020984	MEDU9023000	dAL80 - Network Data Point 3 Out...	10		2012-05-25 06:54
461486	MSCU7312500	dAL90 - Future	10	xxx	2012-05-25 06:54
581582	MWCU6208300	dAL80 - Network Data Point 3 Out...	10	xxx	2012-05-25 06:54
420484	MWCU6956200	018 Power supply phase error	1	xxx	2012-05-25 06:52
301486	MWCU5697300	caAL33 - Future	15		2012-05-25 06:50
620886	LNXU9653900	dAL78 - Network Data Point 1 Out...	10		2012-05-25 06:50
220882	MWCU5266600	AW301 RH short [other sensor]	2		2012-05-25 06:48

Table: Container Details (MWCU5311382)

Date	Time	Temp. SP Exp.	Temp SP	Supply	Return	Online	Evap. Temp.	Batt. Vd
Current (meaning: actual)								
2012-05-25	09:59	0,5	0,0	0,0	-0,1	Yes	-0,1	12,4
	08:59	0,5	0,0	0,0	-0,1	Yes	-0,1	12,4
	08:01	0,5	0,0	0,0	-0,1	Yes	-0,1	12,4
	07:21	0,5				Yes		
2012-05-24	18:59	0,5	0,0	0,0	-0,1	Yes	-0,1	12,4
	17:59	0,5	0,0	0,0	-0,1	Yes	-0,1	12,4
	16:59	0,5	0,0	0,0	-0,1	Yes	-0,1	12,4
	15:59	0,5	0,0	0,0	-0,1	Yes	-0,1	12,4

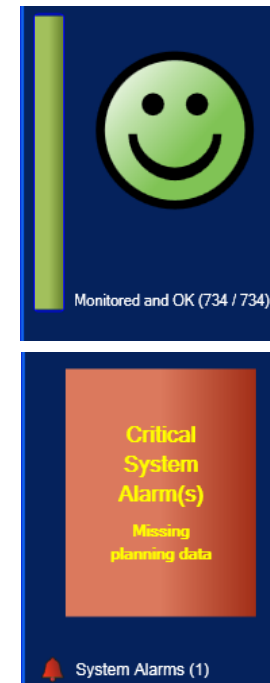
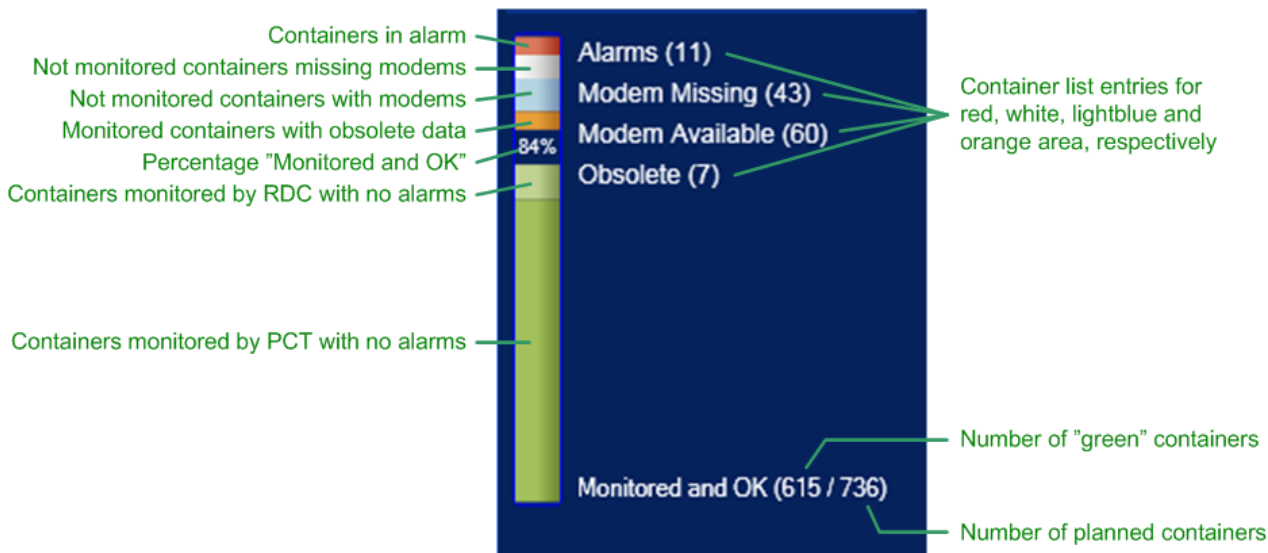


Good advice

You can design exactly which views you want to see and how they are placed. Many users choose to have the Alarm Summary and the Container Plan open side by side

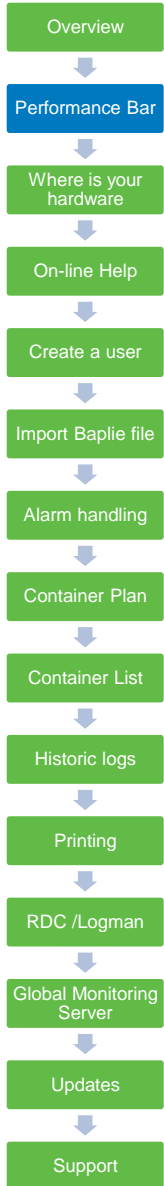
The Performance Bar

- *The Performance bar helps you to handle the monitoring of containers in custody.*
- *Ideally you reach 100% monitoring and no alarms, in which case you will be granted a smiley.*
- *REFCON advice which containers do have a modem available, but needs some maintenance*
- *In case of critical system alarms, which makes the REFCON not able to monitor at all, you will see a large red alarm block instead*



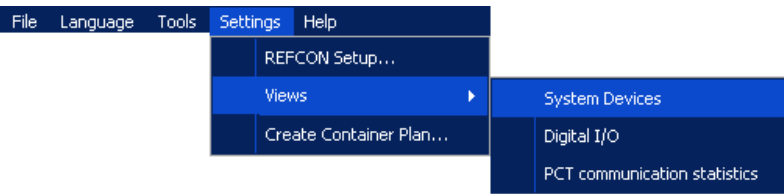
Good advice

It is always possible to achieve the 100% monitoring, by the means of the RDC, so use the handheld to collect data from non-communicating containers



System Devices list

Where to find system device list



Here you can make your own description, which can help locating the device on the vessel

Software version of device

"Fish" swimming indicates activity on this device

Number of containers connected to this device

Device	User's description	Online	Software	Hardware	Activity	Group	Connected
RMM Master (1,1)	SS09 RD-9 starboard	●	E:DEMO1100, F:DEMO2300, flash	RmmMasterMKIV	<*)]]><	1	0
▶ RMM Master (1,2)	SS11 RD-11 portside	●	E:DEMO1100, F:DEMO2300, flash	RmmMasterMKIV	<*)]]><	1	0
RMM Master (1,3)	SS13 RD-13 starboard	●	E:DEMO1100, F:DEMO2300, flash	RmmMasterMKIV	<*)]]><	1	0
RMM Master (1,4)	SS15 RD-15 portside	●	E:DEMO1100, F:DEMO2300, flash	RmmMasterMKIV	><[[f">	1	0
C5175W508 (10.63.141.6)	REFCON Main PC (svensr)	●	REFCON Monitor	PC		-	

Short description of system device. In parantheses (network, node number)

Check that all master's are online (otherwise you will get a system alarm)

Type of hardware

Master group number

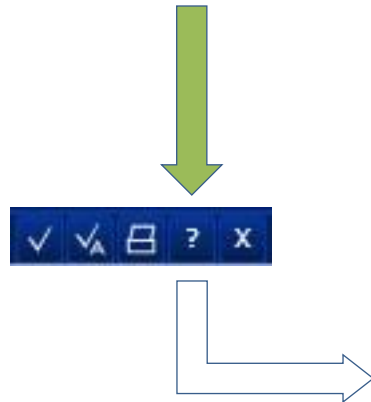
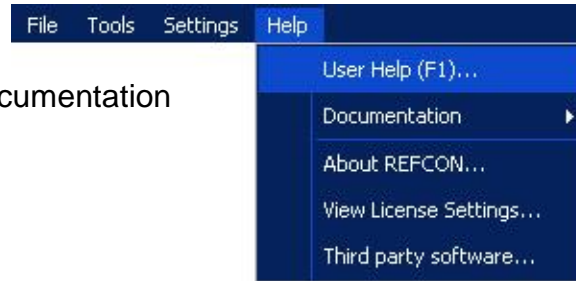
Good advice

In the User's Description, you can make your own description of the placement of the RMM masters, then it becomes much easier to find them in case they need maintenance.

- Overview
- Performance Bar
- Where is your hardware
- On-line Help
- Create a user
- Import Baplie file
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REFCON User Help

- You find the User Help in the menu
- Here you also find a print-friendly PDF version under Documentation
- Or you simply press (F1)
- Or you select the question mark in the upper right corner of any active window



Which brings you direct to the correct page in the manual (context sensitive)

The Alarm System

Key subjects in this topic:

- [Overview](#)
- [Alarms generated by the controller](#)
- [Reservation regarding alarm text strings](#)
- [Alarms generated by REFCON](#)
- [Alarm handling](#)
- [Acknowledging a container's alarms](#)

Related topics:

- [Alarm Summary](#)
- [Alarm propagation](#)
- [Special reefers](#)
- [Container handling mode \(ships only\)](#)
- [Temperature setpoint supervision](#)
- [Possible loss of power alarm](#)
- [Alarms for missing or wrong ID](#)
- [User generated alarms](#)
- [Alarm Options setup](#)

Overview

A vital part of REFCON is the *Alarm System*. Please look at the following sketch:

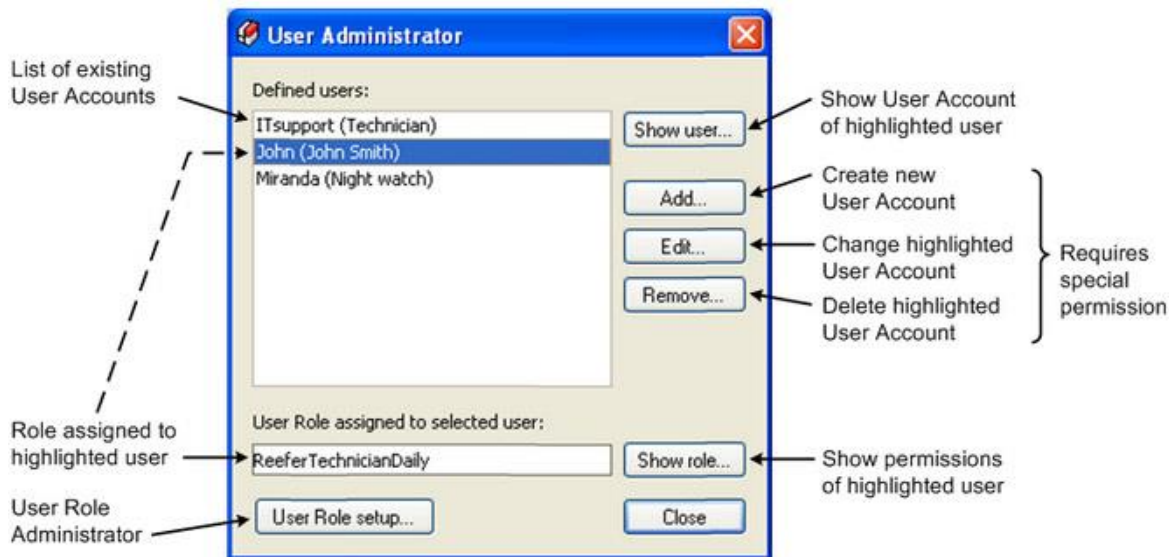
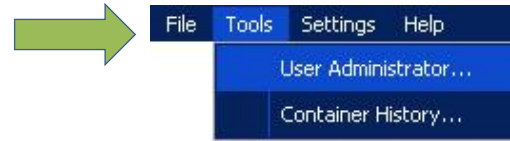
There are in fact three main parts:

- **Alarm generation** = the decision that an alarm must be given. Alarms are generated in two places, the [container controller](#) and [REFCON](#).
- **Alarm handling** = maintaining a list of actual alarms and event logging.

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User administration and password system

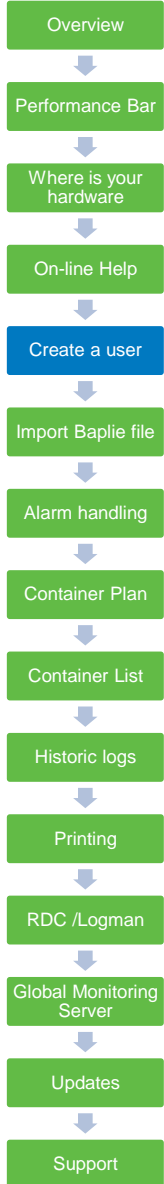
Where to find User Administration



You need to setup at least one user: (Admin password required, the password of "UserAdm" is "LSKEY")

There are four standard roles:

- AlarmAcknowledge (only rights to acknowledge alarms)
- ReeferTechnicianDaily (rights to all daily routines)
- REFCONsetup (rights to make changes to setup)
- AllRightsRole (have rights to all actions in REFCON)



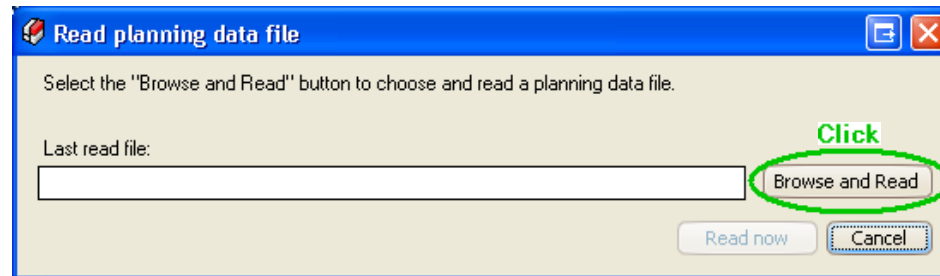
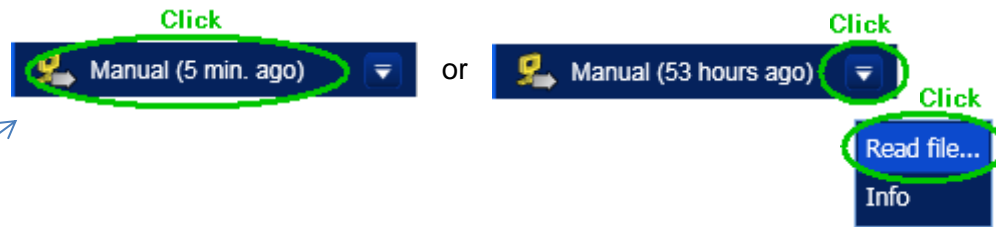
Import Baplie file

Where to find Import of Baplie file



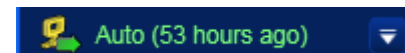
What to do

1. Export file from loading computer.
2. Place file on shared folder on c:\import on REFCON main PC.
3. Select "Read file" in REFCON.
4. Select "Browse and Read".
5. Find and select file on shared drive or in above folder.



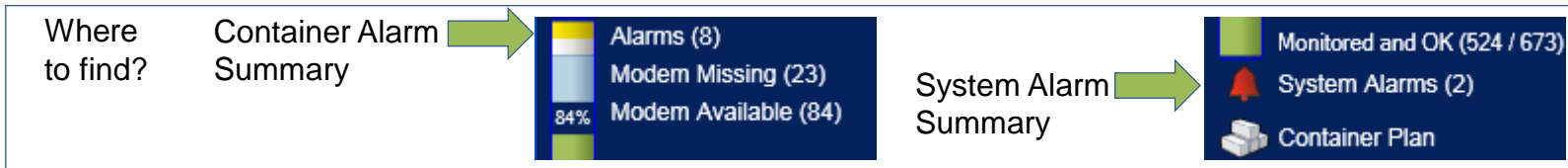
Good advice

In the REFCON setup, you can specify a folder where REFCON automatically imports updated Baplie files. This means you only have to export it from the loading computer – remember to use an identical file name each time

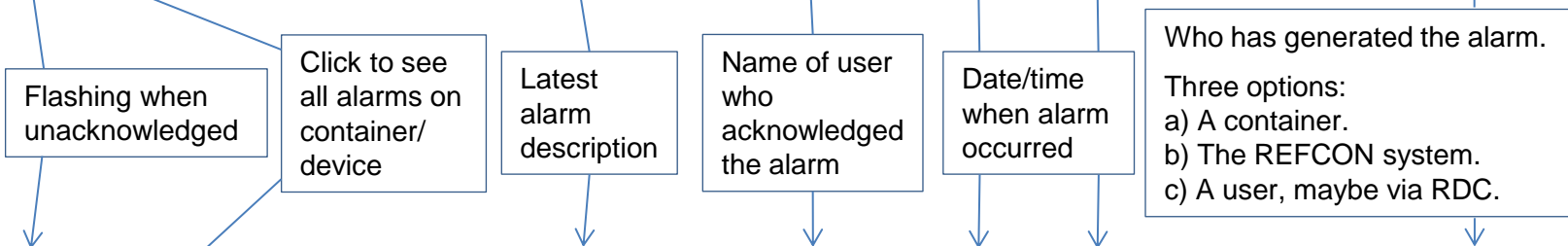


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Alarm Summaries



Location	Container ID	No. of alarms on container		User note field				
Location	Origin	Text	Alarms	User	Time UTC	Time LMT	User's note	Generated By
Containers having alarms (Count=3)								
	MEDU9150410	Container ID is wrong or Planning Data...	1		2012-08-13 08:49:05	2012-08-13 10:49:05		System
	RMMU1900424	Container ID is missing	1	John	2012-08-13 08:49:05	2012-08-13 10:49:05		REFCON
	020182	AKLU6700807	1	John	2012-08-13 08:48:00	2012-08-13 10:48:00	Should be checked ASAP	RDC



Location	Origin	Text	Alarms	User	Time UTC	Time LMT	User's note	Generated By
System alarms (Count=3)								
	RMM Master [22,12]	Device went offline	1		2012-08-14 08:49:22	2012-08-14 10:49:22		REFCON
		No connection to GMS log file folder	1		2012-08-13 11:54:23	2012-08-13 13:54:23		
	Planning System	Device never connected	1	System	2012-08-13 08:48:00	2012-08-13 10:48:00		REFCON

Device in alarm

No. of alarms on device

User note field

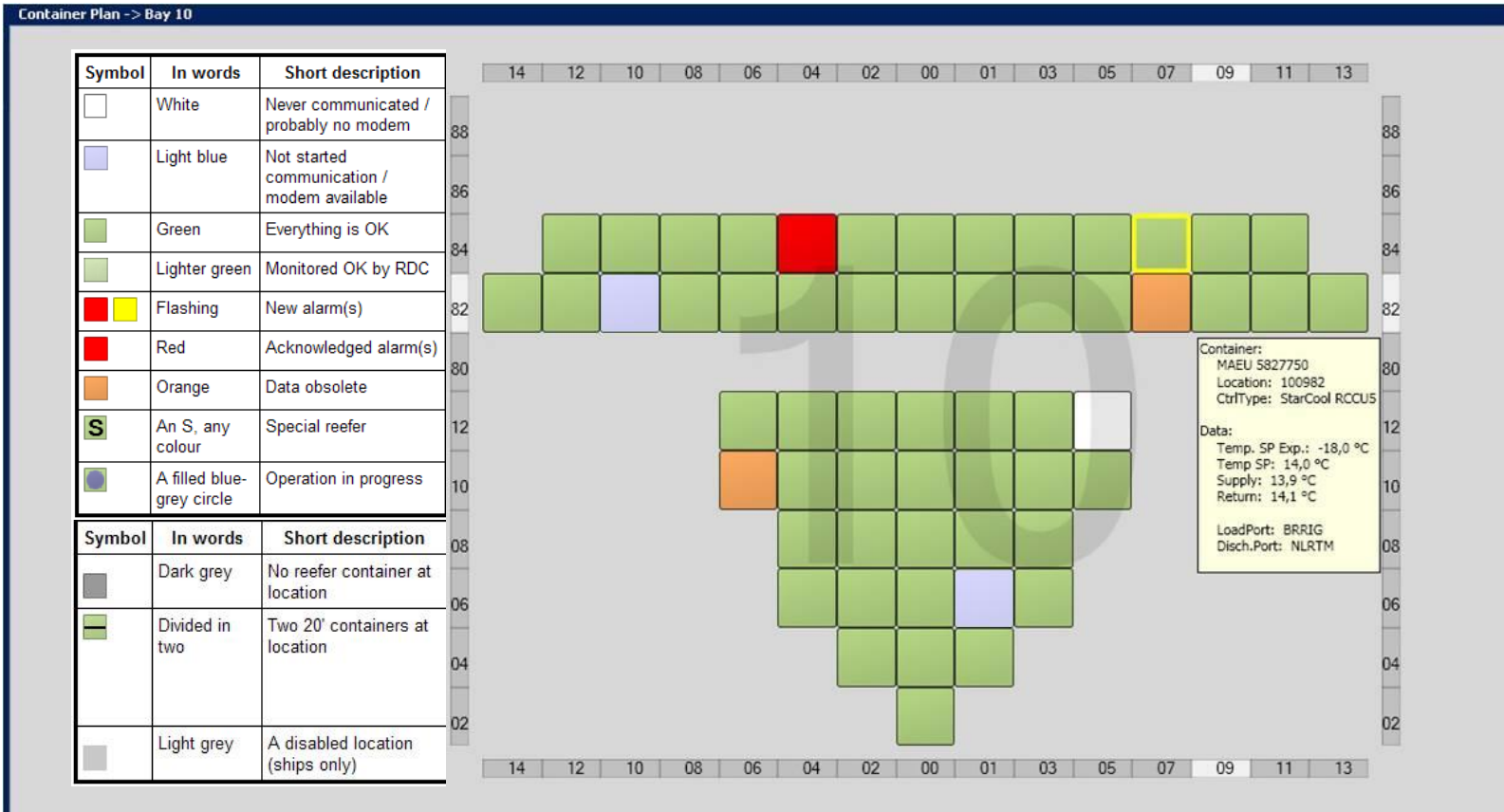
Good advice

With the user's note field, you can type in your own comments regarding a container, so you can give advices to colleagues or make a reminder for yourself.

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Container Plan

Where to find Container Plan



Good advice

When moving the mouse over each container, you will see a tool tip, which gives the most important information about this container

- Overview
- ↓
- Performance Bar
- ↓
- Where is your hardware
- ↓
- On-line Help
- ↓
- Create a user
- ↓
- Import Baplie file
- ↓
- Alarm handling
- ↓
- Container Plan**
- ↓
- Container List
- ↓
- Historic logs
- ↓
- Printing
- ↓
- RDC /Logman
- ↓
- Global Monitoring Server
- ↓
- Updates
- ↓
- Support

Using the Container Lists

Standard lists. Locked for changes.

- Alarms (30)
 - Modem Missing (16)
 - Modem Available (76)
- Monitored and OK (565 / 673)
- System Alarms (1)
- Container Plan
- Container Lists:
 - All Containers (687)
 - Sample Container List (345)
 - Setpoints differ list (427)

User-defined lists

Create user-defined list by making copy of the open list

Open list from Side Panel

List name

List menu

- Best Fit (all columns)
- Add/Remove columns...
- Save list changes
- Save list as...
- Delete this list

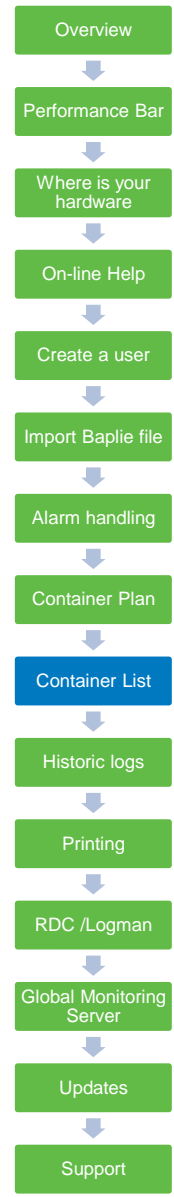
Standard Info		Temperature						
Location	ContainerID	Alms	Temp. SP Exp.	Temp SP	Supply	Return		
621384	SUDU5182490	0	0,5	14,0	13,9	14,1		
621484	MWCU6065283	0	0,5	-18,0	-11,1	22,2		
621686	RVLU1957072	0	0,5					
030384	SUDU5131804	0	0,5	0,6	-11,1	22,2		
070186	MORU0618547	0	0,5	-18,0	-11,1	22,2		
111282	MORU0501078	0	0,5					
111584	EMCU5252532	0	0,5	0,0	0,0	-0,1		
131182	PONU2956222	0	0,5	0,6	-11,1	22,2		
170286	MSWU1037058	0	0,5	-18,0	-11,1	22,2		
170984	MSWU0086438	0	0,5	4,3	-15,4	5,3		
171084	CGMU9319687	0	0,5	14,0	13,9	14,1		
171486	CGMU4955412	0	0,5	0,0	0,0	-0,1		
190384	SUDU5272700	10	0,5	-18,0	-11,1	22,2		
190882	CGMU4911055	0	0,5	0,6	-11,1	22,2		
191486	MWU06313420	0	0,5	0,5	0,5			
231282	SUDU1042798	0	0,5					

List filter (if any)

Line number in list of selected container

Number of containers in this list

0	Field with no value or a value that can not get obsolete.
0	The container is selected / highlighted.
0.0	The value is valid and not obsolete.
-21.6	The data point is "obsolete", do not rely on value.

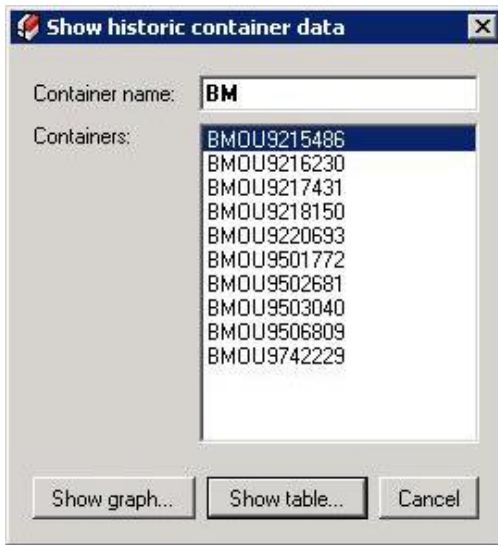


Good advice

You can create your own list by pressing the "+" symbol and then select "Add/remove Columns" in List menu and/or "Edit Filter" – Now you can make the list exactly after your needs.

Historic Container Logs

Where to find Historic logs



Hourly Container Data

BMOU9215486

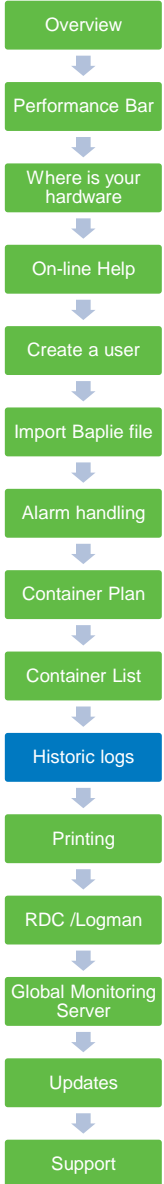
Switch to UTC Print/Export

Date (LMT)	Time (LMT)	SP Exp. (°C)	Setpoint (°C)	Supply2 (°C)	Return2 (°C)	Defrosting	Online
2011-11-05	23:00:08	-25.0					No
	22:00:08	-25.0					No
	21:00:08	-25.0	-25.0	-28.0	-26.0	No	Yes
	20:00:09	-25.0	-25.0	-27.0	-25.0	No	Yes
	20:00:08	-25.0	-25.0	-27.0	-25.0	No	Yes
	19:00:07	-25.0	-25.0	-25.0	-25.0	No	Yes
	18:00:07	-25.0	-25.0	-25.0	-25.0	No	Yes
	18:00:06	-25.0	-25.0	-25.0	-25.0	No	Yes
	17:00:06	-25.0	-25.0	-28.0	-26.0	No	Yes
	16:00:06	-25.0	-25.0	-28.0	-26.0	No	Yes
	15:00:06	-25.0	-25.0	-29.0	-26.0	No	Yes
	14:00:06	-25.0	-25.0	-26.0	-26.0	No	Yes
	13:00:06	-25.0	-25.0	-27.0	-26.0	No	Yes
	12:00:07	-25.0	-25.0	-25.0	-26.0	No	Yes
	11:00:07	-25.0	-25.0	-28.0	-26.0	No	Yes
	10:00:07	-25.0	-25.0	-28.0	-26.0	No	Yes
	09:00:08	-25.0	-25.0	-25.0	-25.0	No	Yes
	08:00:08	-25.0	-25.0	-25.0	-25.0	No	Yes
	07:00:08	-25.0	-25.0	-28.0	-26.0	No	Yes

Hereafter you can print or export as .PDF or .XLS file

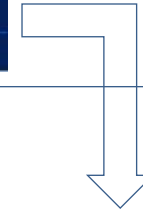
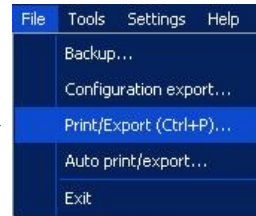
Good advice

Historic container logs are per default kept for 36 months. You can change the setting in REFCON setup (password protected)



How to print

- You find Print/Export in the file menu
- Or you press (CTRL+P)
- Or you select the print icon in any active window



You can also setup print jobs that runs automatically e.g. every day at 16:00

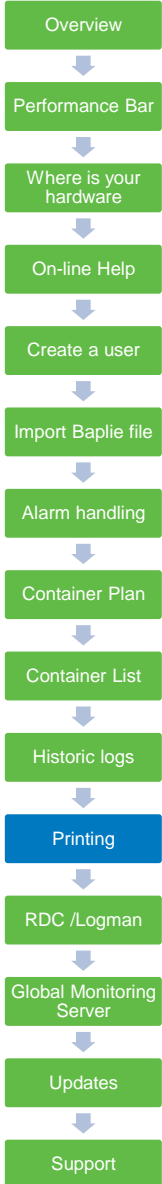


A screenshot of a 'Preview' window. The window title is 'Preview'. It shows a table titled 'Setpoints differ list' with columns for Location, ContainerID, Contents, Temperature (Temp. SP Exp., Temp SP, Supply), and Miscellaneous (Temp.SP match). The table contains several rows of data. The window also shows 'Lars Maersk' and 'Page 1 of 19'.

Location	Standard Info		Manifest Contents	Temperature			Miscellaneous
	ContainerID			Temp. SP Exp.	Temp SP	Supply	
021682	SEAU8631407		-11.1	0.0	0.0	<input type="checkbox"/>	
021684	MCHU8622808		-11.1	-18.0	-11.1	<input type="checkbox"/>	
021686	PONU8085313		-11.1	0.6	-11.1	<input type="checkbox"/>	
030882	TTNU2471435		-11.1	4.3	-15.4	<input type="checkbox"/>	
030884	TGHU2140903		-11.1	14.0	13.9	<input type="checkbox"/>	
030886	MAEU6728541		-11.1	0.0	0.0	<input type="checkbox"/>	
030887	MCHI12051105		-11.1	18.0	-11.1	<input type="checkbox"/>	

Good advice

In the preview window you can select between a lot of output formats, such as local printer, .PDF file, .csv file or .xls file



RDC+ / LogMan

One handheld device – two functions



LogMan II *Interfaces to LogView*

- Download/retrieval and transferring of logs to computer for subsequent analysis and/or storage using the LogView software.
- Set-up of container data such as container ID, date and time, trip start date, etc..
- Update of controller firmware in reefer containers.
- Compatible with Thermo King, Carrier, Daikin, Mitsubishi and Starcool containers.



RDC+ *Interfaces to REFCON*

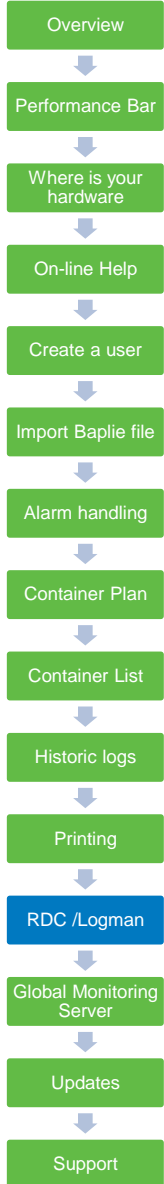


Monitor the containers which do not communicate via powerline.

- The RDC shows you the list of non-communicating containers in a convenient walk-route.
- The container ID, location and temperature setpoints are transferred to the RDC for easy verification.
- It is possible to type in setpoint, supply and return temp, comments and alarms, and many other measures for documentation purposes.

Good advice

By using the RDC in combination with your REFCON system, you have full documentation of the containers in your custody – the same data are also transfered to the Global Monitoring Server



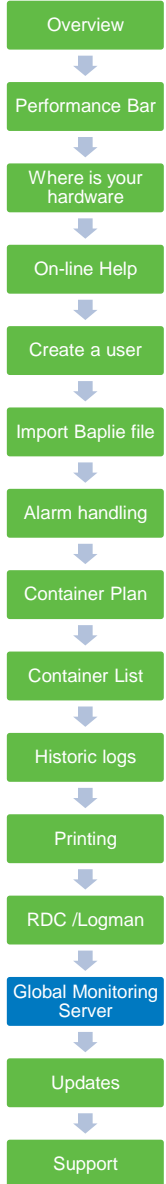
Global Monitoring Server

END-TO-END CONTAINER COMMUNICATION



Is your vessel connected ?

- Check your owner's instruction if REFCON data shall be transmitted to Global Monitoring Server
- REFCON GMS hourly log files must be transferred from folder C:\GMSLogif
- Data are sent via ship's own mail server
- Files are already packed (zipped) – just sent them as they are
- Recommended to send all files in this folder at least every 24 hours
- Files must be sent to gms.logif@reefers-online.com – or mail address instructed by owner



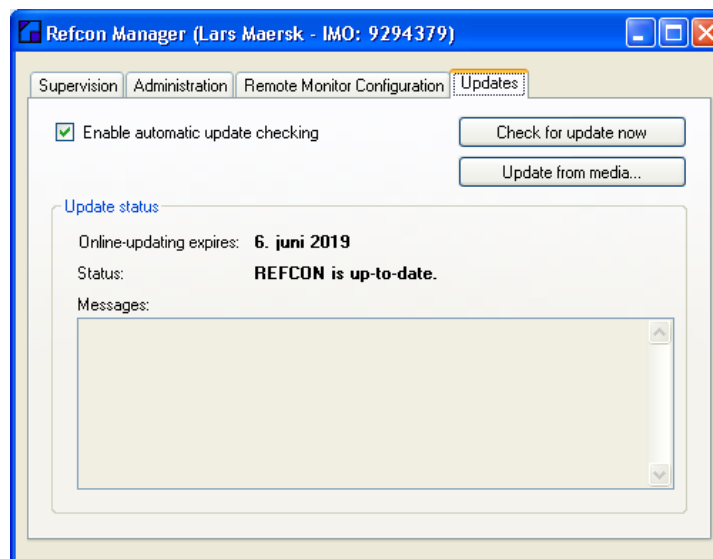
Updates

All REFFCON systems are delivered with **1 year free upgrade**

However as your REFFCON system is not on-line to the Internet, you need to manually check for updates

What to do

1. Note down which REFFCON version you have (This you can see in the About box)
2. Find a computer with Internet access
3. Go to www.myrefcon.com/support/refcon-6-system/
4. Select the correct update file, which matches your current REFFCON version
5. Download file to USB stick
6. Open REFFCON Manager (Supervision tab) and stop REFFCON
7. Select "Updates" tab
8. Select "Update from media"
9. Import update file from USB stick



REFCON Manager

Good advice

By keeping your REFFCON updated, you are sure that all new reefer containers are correctly displayed in the REFFCON system.



Support

You can contact us in the following ways:

Homepage: www.EmersonClimate.com/TransportationSolutions

E-mail: TS.support@emerson.com

Phone: +45 70 23 44 44 (Opening hours 0800-1600 (UTC+1))

Good advice

*At any contact to our support department, please have following information ready;
Vessel Name, New building number, REFCON software version.*

