

REFCON 6 Quick Introduction



Terminal version: 4002-021
2015.08.31 – subject to change without notice
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

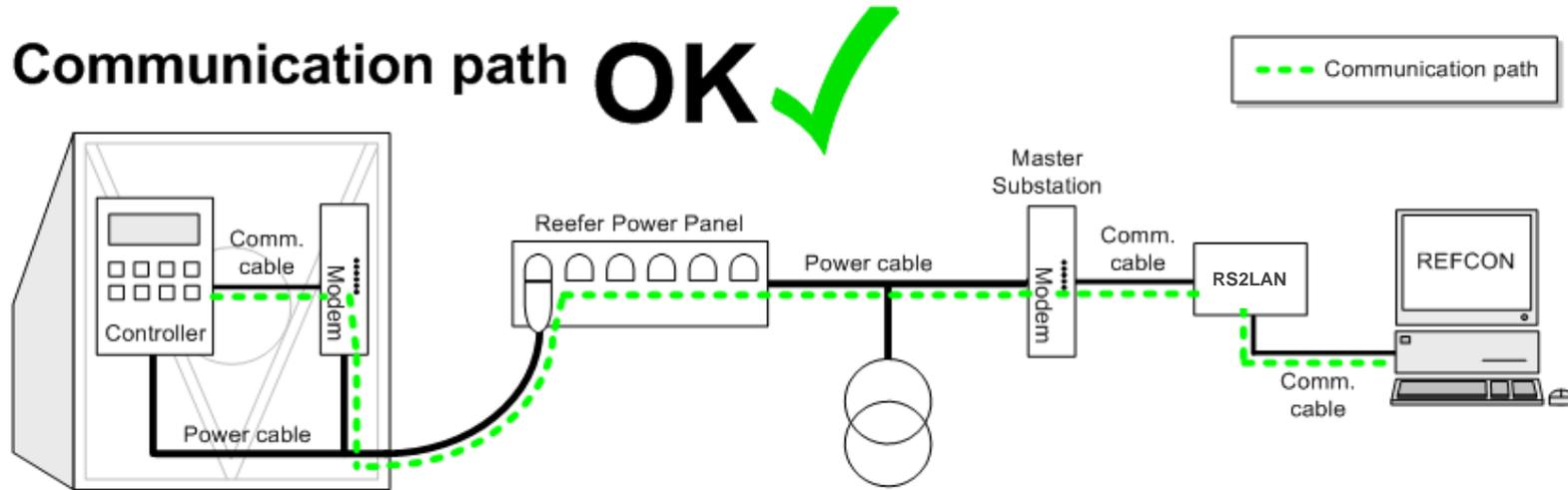


How does it work



How to use

Communication path must be ok all the way



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 the maintenance and repair agreements with the reefer owners, so you know for whom you can replace defective modems. Also check that you have sufficient spare modems in stock.

Benefits



How does it work



How to use

Components in a REFCON system



Benefits

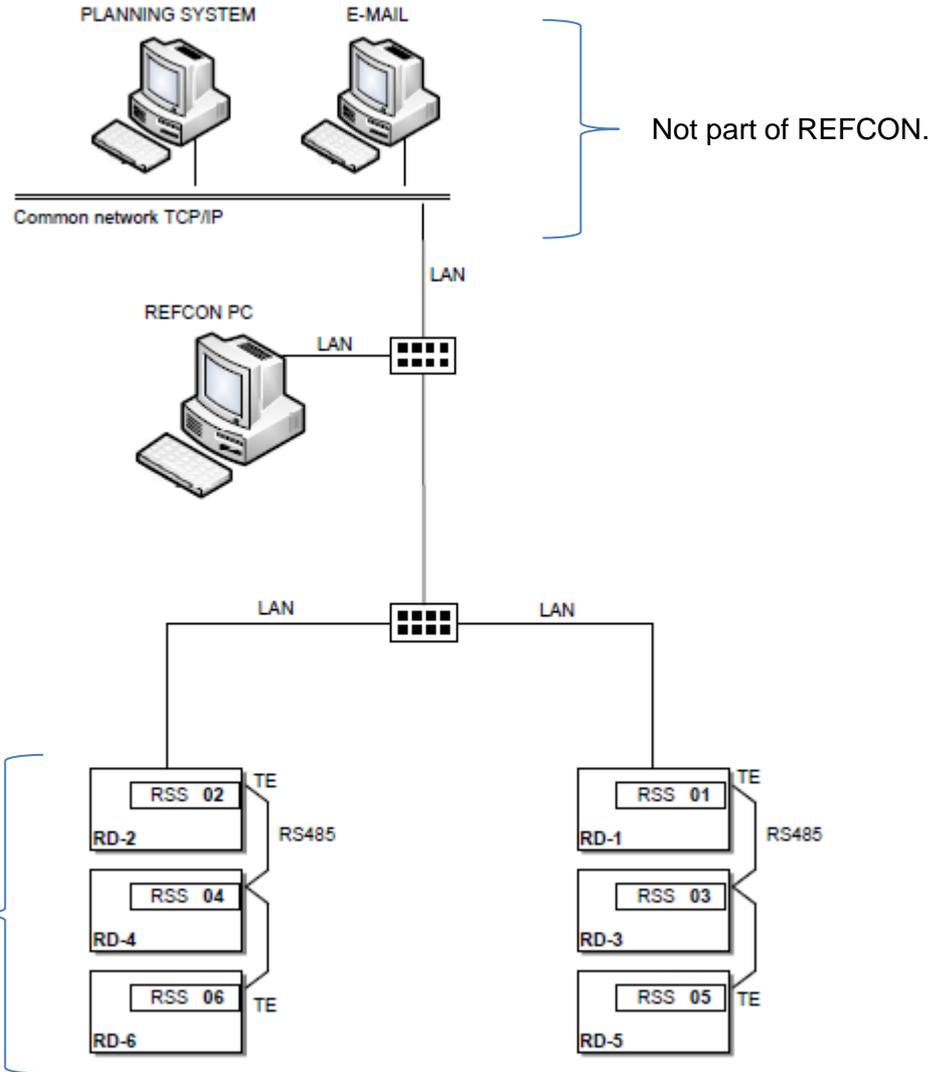


How does it work



How to use

Typical Terminal layout



System devices.
In this example
there are 6 RMM
masters.

Benefits



How
does it
work



How to
use

REFCON 6 overview

Labels on the left side:

- Minimize
- Container Alarms (if any)
- Performance Bar
- System Alarms (if any)
- Select view
- Add Container List
- Planning data status / import
- RDC
- PCT indicator

Labels on the right side:

- List and Container plan views
- Minimize
- Container Details

Labels on the top side:

- Side Panel
- Container quick search
- User
- Current time

Table: Container Alarm Summary

Location	Origin	Text	Alarms	Ini...	Time UTC
Containers having alarms (Count=8)					
IRJU1552801		018 Power supply phase error	1		2012-05-25 08:03
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	LNKU9653900	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 - Historic Log

Date	Time	Temp. SP Exp.	Temp SP	Supply	Return	Online	Evap. Temp.	Batt. Vc
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
	16:50	0,5	0,0	0,0	-0,1	Yes	-0,1	12,4

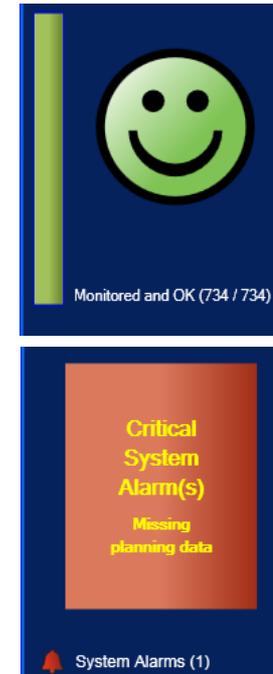
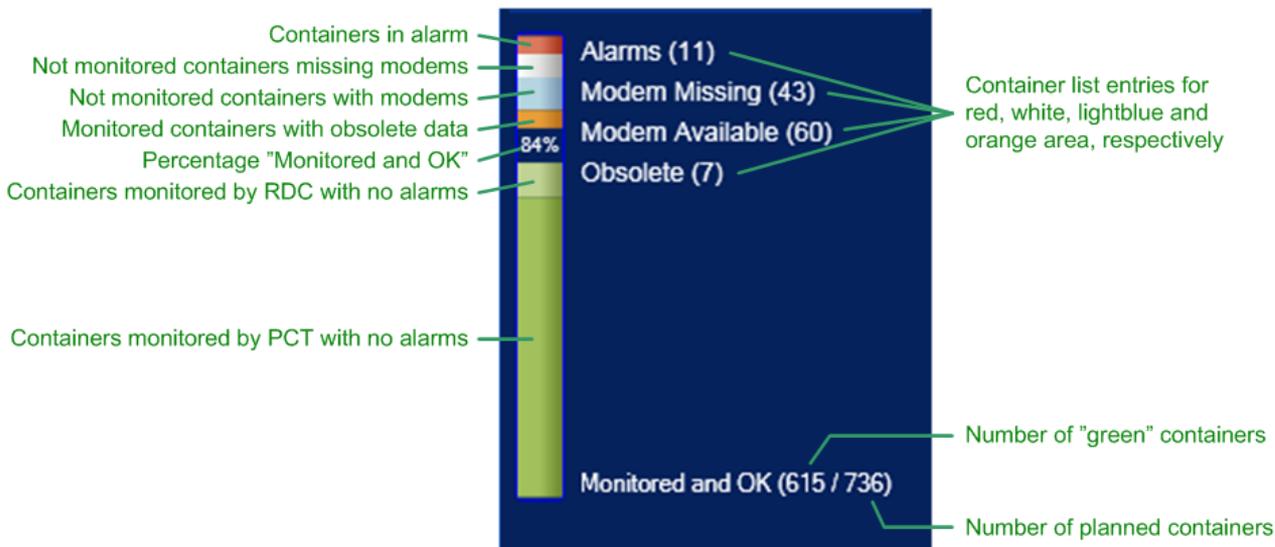


Good advice

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*



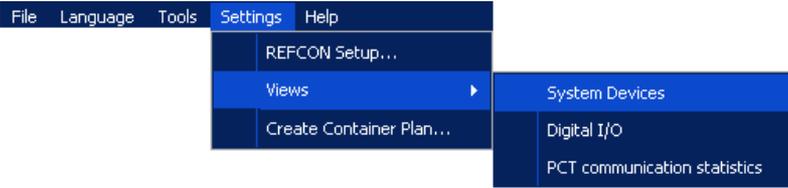
Good advice

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 terminal

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
RS2LAN (Net 28)	RS12 N-M MID	●	10.31.9.77 port 12008	RS2LAN		0	1
RS2LAN (Net 27)	RS13 L-K MID	●	10.31.9.76 port 12007	RS2LAN		0	1
RS2LAN (Net 26)	RS14 H-G MID NIEUW	●	10.31.9.75 port 12006	RS2LAN		0	1
RS2LAN (Net 25)	RS15 E-F MID NIEUW	●	10.31.9.74 port 12005	RS2LAN		0	1
RMM Master (37,10)	RS19	●	Mk.IV: E:05021800, F:06031400, Flash	RmmMasterMKIV	<*)]]><	1	16
RMM Master (36,10)	RS17	●	Mk.IV: E:05021800, F:06031400, Flash	RmmMasterMKIV	{o'}<	1	3
RMM Master (35,10)	RS16	●	Mk.IV: E:05021800, F:06031400, Flash	RmmMasterMKIV	<*)]]><	1	0
RMM Master (34,10)	RS08	●	Mk.IV: E:05021800, F:06031400, Flash	RmmMasterMKIV	><{({>	1	5
RMM Master (33,10)	RS07	●	Mk.IV: E:05021800, F:06031400, Flash	RmmMasterMKIV	<*)]]><	1	16

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

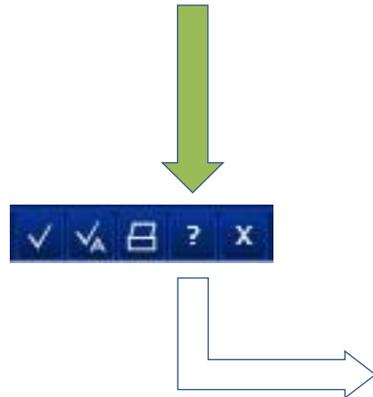
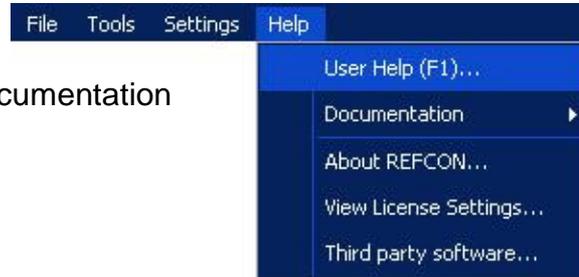
Good advice

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
- Planning System
- Alarm handling
- Container Plan
- Container List
- Historic logs
- Printing
- RDC /Logman
- Global Monitoring Server
- Updates
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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:

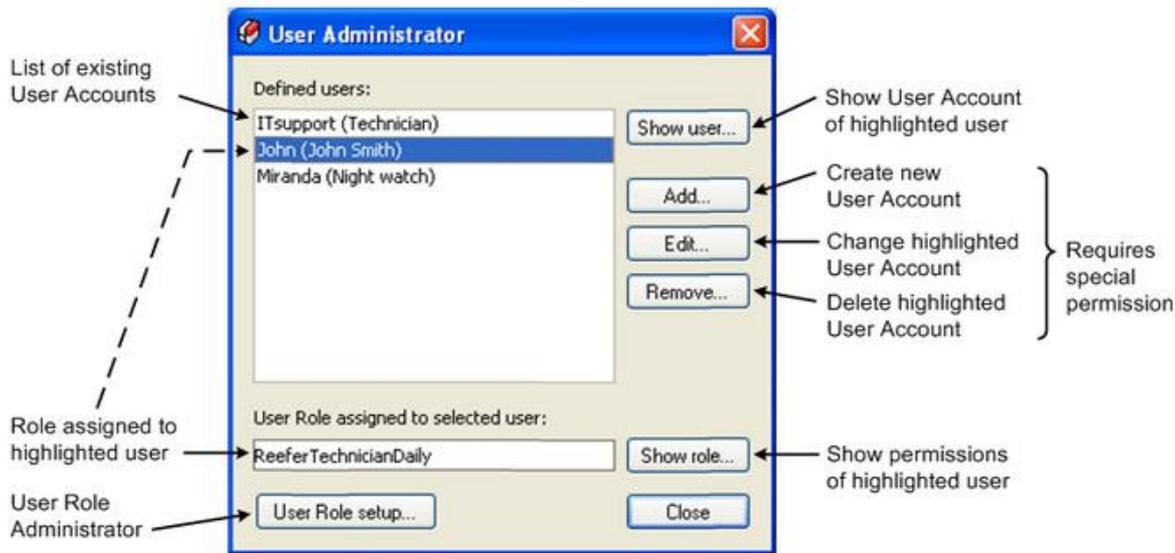
There are in fact three main parts:

- **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, please look in the manual)

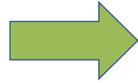
There are four standard roles:

- 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)



Planning System Communication Interface

Where to check the interface status

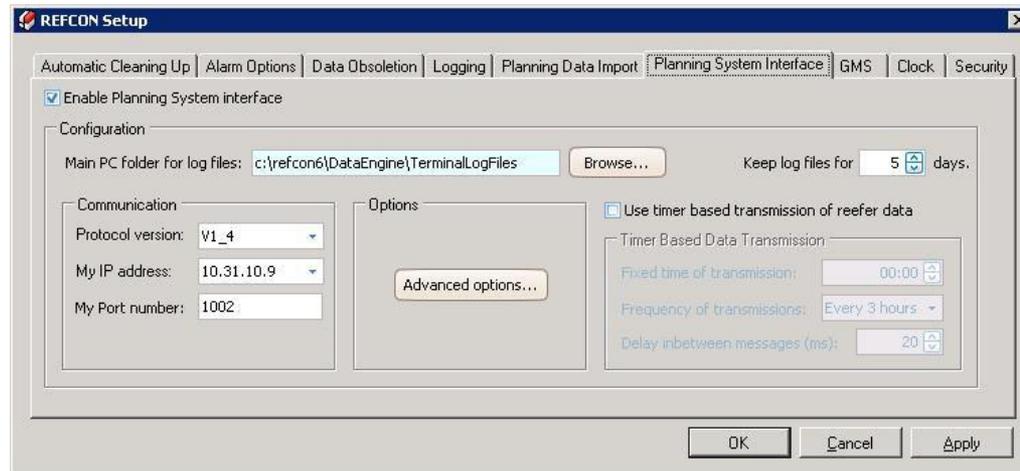


Note: Two-way arrow

The basic idea of the Planning System Communication Interface is to automatically keep data updated on both systems (REFCON and the Terminal Operating System):

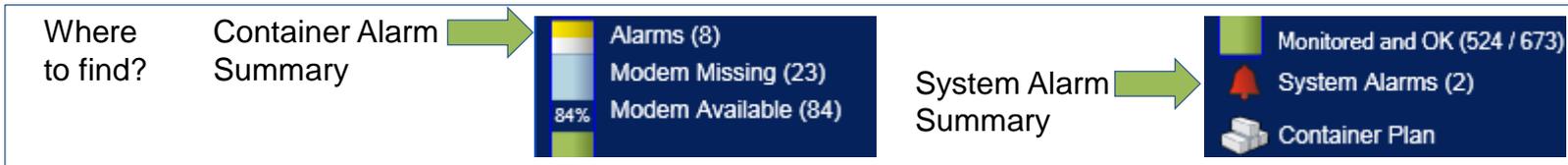
REFCON typically receives	Planning System typically receives
<i>Container ID, expected setpoint, physical location on terminal, plug/unplug information</i>	<i>Actual setpoint, supply and return temperatures and alarms</i>

LAN connection and protocol settings are done in the REFCON setup.

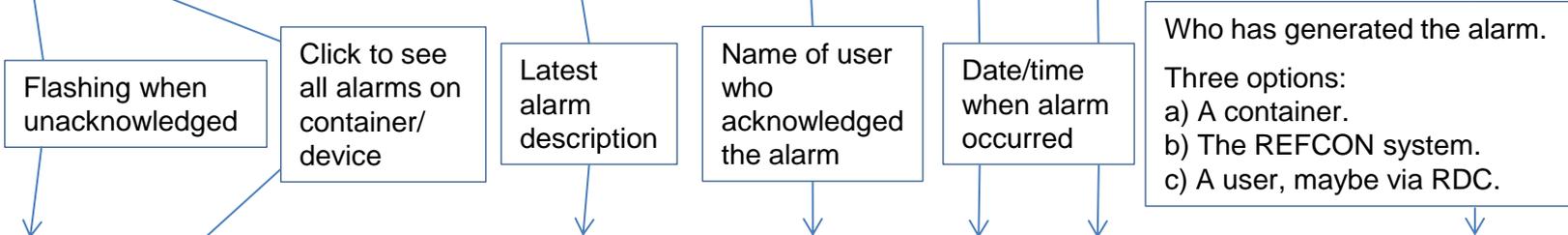


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Alarm Summaries



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



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

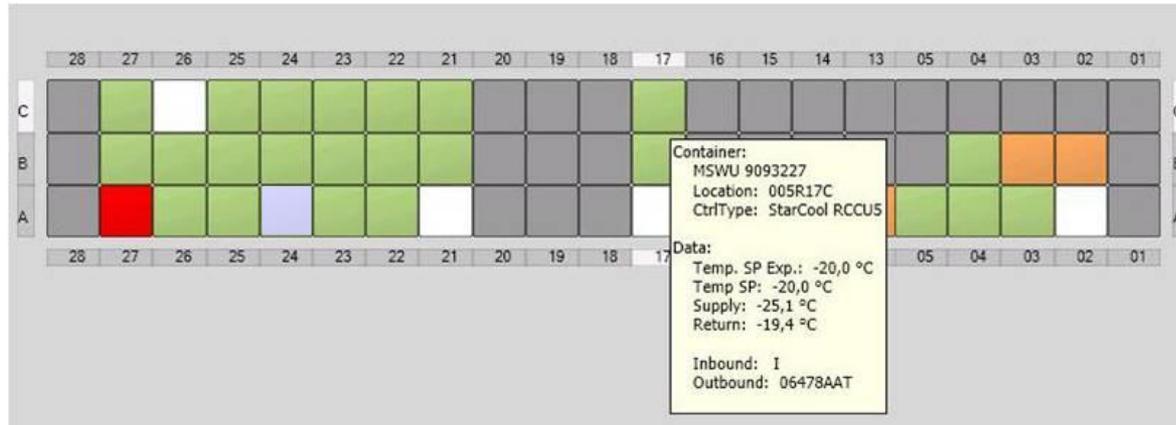
Where to find Container Plan



Monitored and OK (524 / 673)

Container Plan

Symbol	In words	Short description
	White	Never communicated / probably no modem
	Light blue	Not started communication / modem available
	Green	Everything is OK
	Lighter green	Monitored OK by RDC
	Flashing	New alarm(s)
	Red	Acknowledged alarm(s)
	Orange	Data obsolete
	An S, any colour	Special reefer
	A filled blue-grey circle	Operation in progress



Symbol	In words	Short description
	Dark grey	No reefer container at location
	Divided in two	Two 20' containers at location
	Light grey	A disabled location (ships only)

Good advice

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

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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

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

Sample Container 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					

Line number in list of selected container

Number of containers in this list

List filter (if any)

Legend:

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.

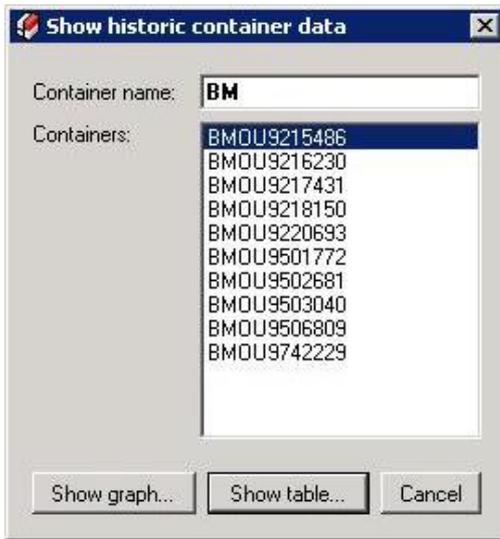


Good advice

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

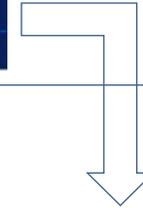
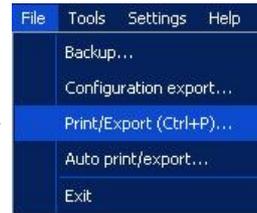
Good advice

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

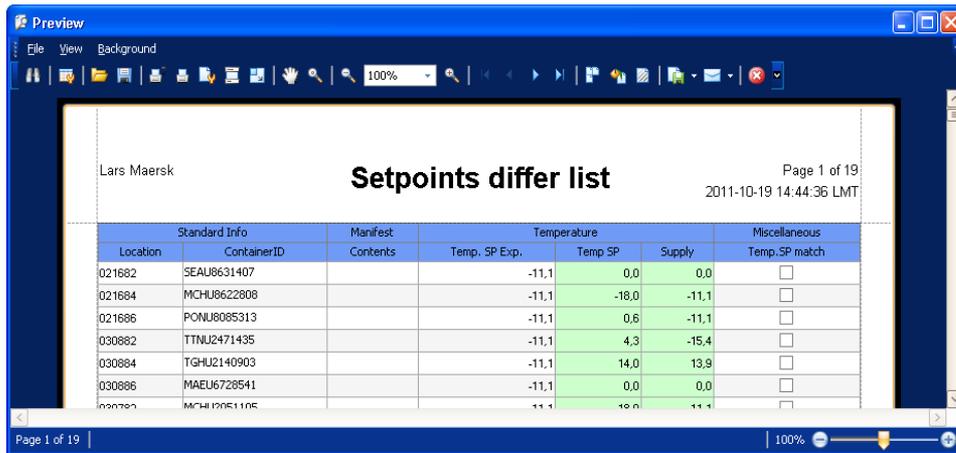


How to print

- 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



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 transferred to the Global Monitoring Server



Global Monitoring Server

END-TO-END CONTAINER COMMUNICATION



Is your Terminal connected ?

- Check 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 a separate program GMS LogIF



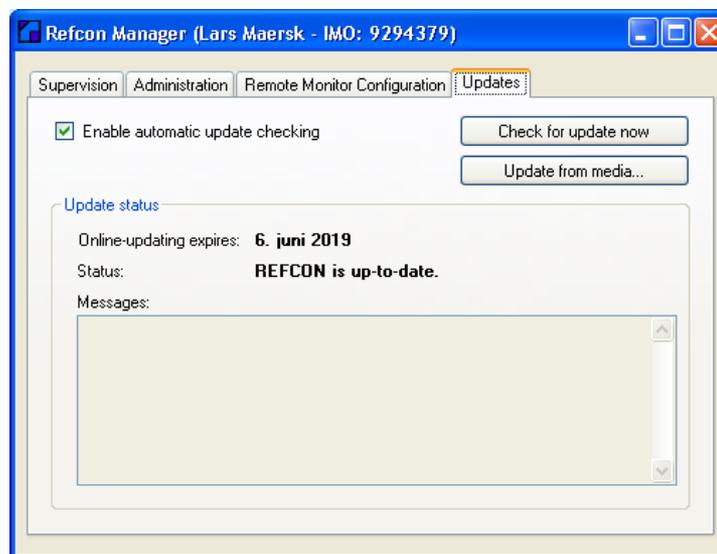
Updates

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

Provided your REFCON system is on-line to the Internet, the system will automatically notify when updates are available

What to do

1. REFCON Monitor will notify that an update is available
2. Open REFCON Manager (Supervision tab) and stop REFCON
3. Select "Updates" tab
4. Select "Check for update now"



REFCON Manager

Good advice

With the Premium Support agreement you have free access to all updates. By keeping your REFCON updated, you are sure that all new reefer container alarms are correctly displayed in the REFCON 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;
Terminal name and REFCON software version.*

