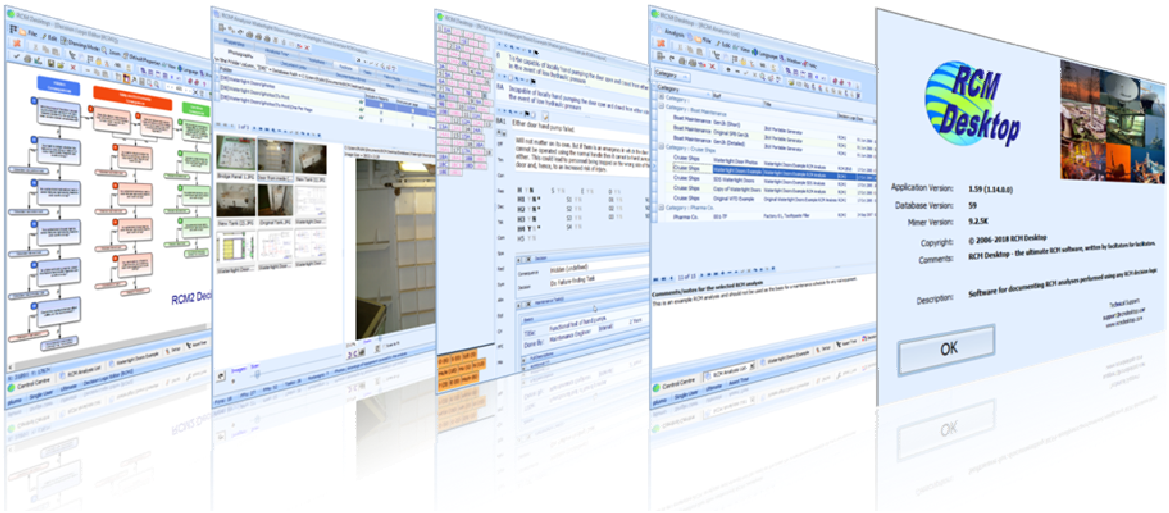
RCM Desktop

The Ultimate RCM Software...



...written by facilitators for facilitators.

"WRITTEN BY FACILITATORS FOR FACILITATORS"

RCM DESKTOP

RCM Desktop software has been developed to provide advanced support for the application of RCM.

Special attention has been paid to the role of the RCM Facilitator in order to maximise their productivity (especially during analysis group meetings) with advanced ease-of-use and speed-of-use features that make ***RCM Desktop*** fast and intuitive.

The software removes the need for technical typists, reams of paperwork or walls covered in flip charts.

The overall philosophy behind the design of the software is:

> ***"To enable the RCM Facilitator to manage efficiently all aspects of an RCM Analysis and to document it live during analysis group meetings using any RCM Task Selection Logic."***

OPERATING REQUIREMENTS

RCM Desktop will run on any PC capable of running Windows XP, Vista, 7 or 10:

SOFTWARE EDITIONS

RCM Desktop is available in four editions which include progressively more features; each edition includes all the features provided in the lower priced editions:

Basic

The ***RCM Desktop*** Basic Edition provides the minimum set of features required to document an RCM analysis using ***any*** RCM Task Selection Logic.

It is intended for users who plan to do a small number of RCM analyses or who are, perhaps, undertaking a RCM pilot project and don't yet need any of the more advanced features.

Intermediate

The ***RCM Desktop*** Intermediate Edition provides further features designed to enhance facilitator productivity and allow input of additional supporting information.

It is intended for users who wish to make use of the additional productivity features or who have a small number of RCM analyses to document.

Advanced

The ***RCM Desktop*** Advanced Edition is everything an RCM Facilitator could ask for, incorporating a set of highly-advanced facilitator productivity features.

It is intended for users who wish to maximise facilitator productivity, who wish to dispense with paperwork and flip charts and who need to manage one or more large RCM projects.

Ultimate

The ***RCM Desktop*** Ultimate Edition includes a visual SQL query builder which has full SQL access to the underlying ***RCM Desktop*** database tables and views.

It is intended for users who need to design their own queries for exporting RCM data to other systems.

The distinguishing features included in each ***RCM Desktop*** edition are described in the following sections.

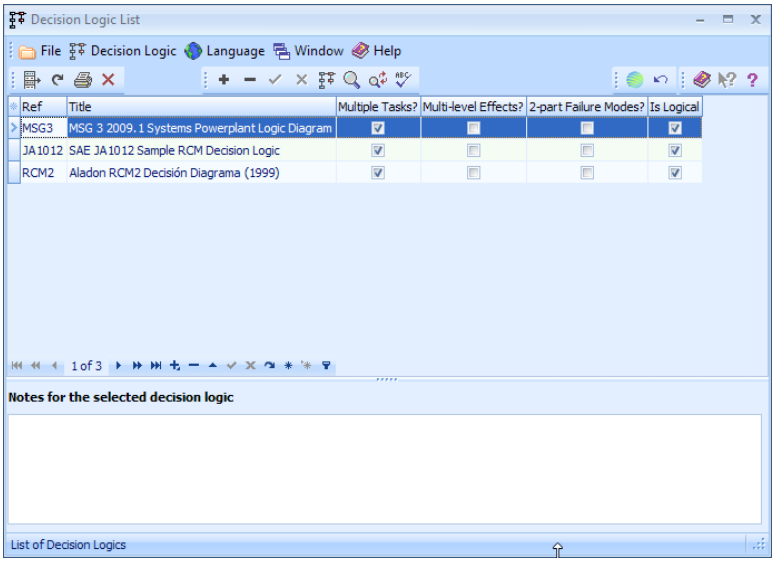
Appendix 1 at the end of this brochure contains a feature comparison table which shows how the features described in this brochure map into each ***RCM Desktop*** edition.

BASIC EDITION

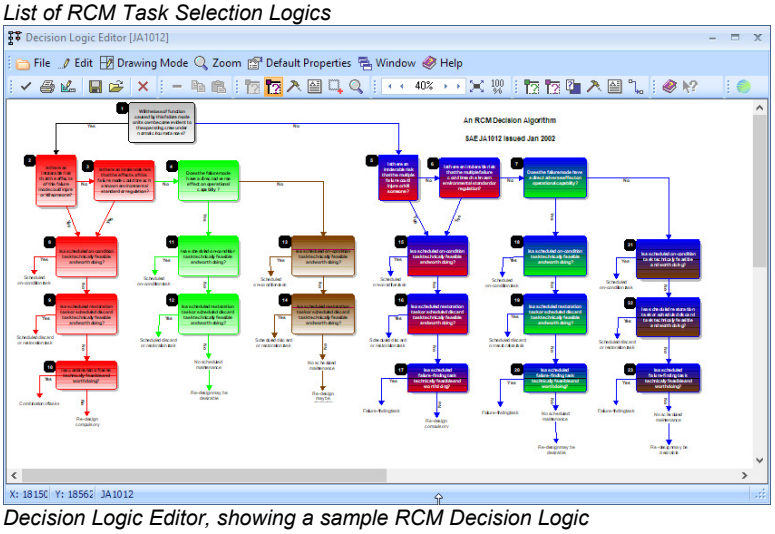
The key features of the Basic Edition of ***RCM Desktop*** are explained below:

User-Defined Task Selection Logic

There are many different RCM task selection logic diagrams in existence; a major feature of ***RCM Desktop*** is that it does not tie you down to any particular one. You can use *any logic* that you wish. You can even define your own Task Selection Logic and incorporate it into the ***RCM Desktop***.



List of RCM Task Selection Logics



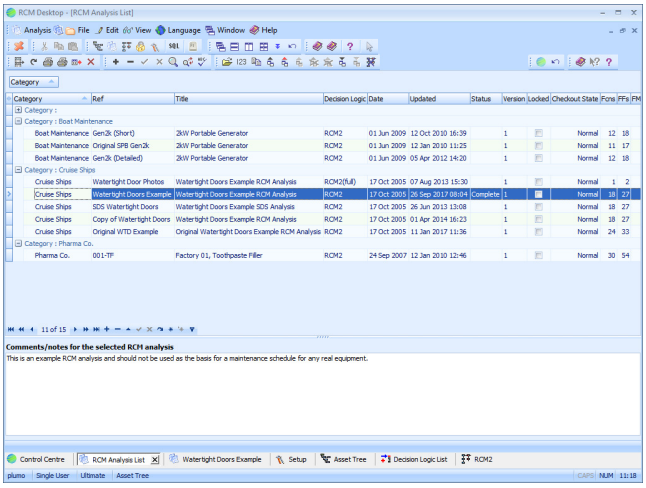
Decision Logic Editor, showing a sample RCM Decision Logic

Any RCM analysis recorded in the ***RCM Desktop*** can use any Task Selection Logic and the software automatically configures itself to match the initial decision logic selected for the analysis.

RCM Desktop is supplied with some of the more common RCM selection logics already installed including SAE JA1012, MSG3 and Nolan & Heap.

Analysis List

The Analysis List is where individual RCM analyses are managed. In the Basic Edition users can create analyses, open them for editing and delete them.

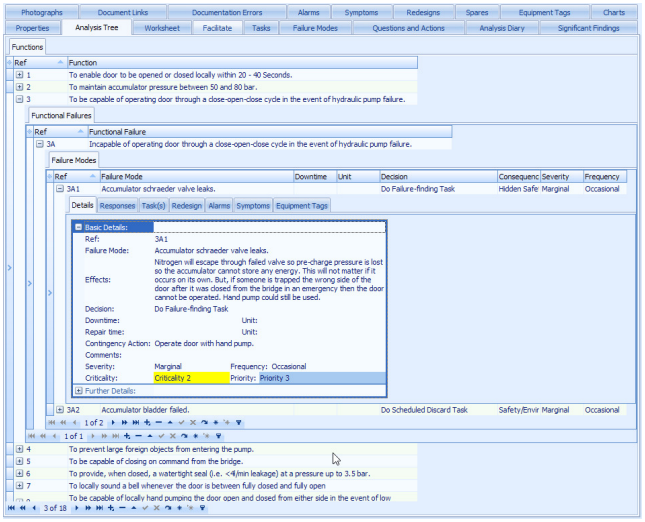


Analysis List Window

The Analysis Tree

In the Basic Edition editing of Functions, Functional Failures, Failure Modes and Scheduled Tasks is done using a powerful grid which presents data to the user in a similar fashion to a spreadsheet, but much more intelligently.

The grid shows the analysis as a tree structure, with Functions at the highest level, Functional Failures at the 2nd level, Failure Modes on the 3rd, and so on.



Analysis Tree expanded as far as Failure Mode Details

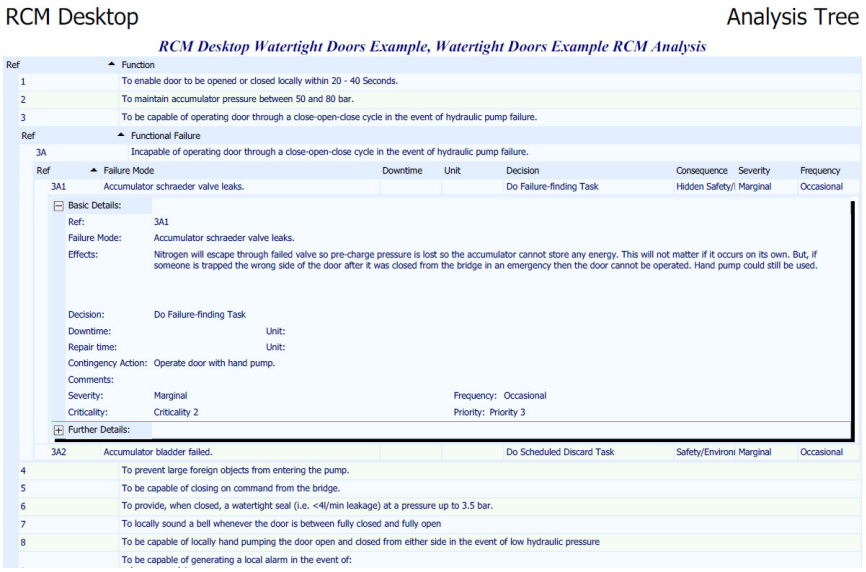
The Analysis Tree grid allows a large amount of information to be recorded against each Failure Mode:

- ☑ Failure Effects
- ☑ Analysis Group's Decision
- ☑ Responses to Decision Logic questions (+ Comments)

- ☑ Maintenance Task(s) – basic details only
- ☑ Down Time
- ☑ Repair Time
- ☑ Contingency Action
- ☑ General Comments
- ☑ Redesigns.

The grid is highly customisable. Columns can be rearranged; columns can be hidden/shown; records can be grouped by any column; records can be sorted by any column. So, users can define their own preferred layout.

The grid can be printed at any time and will appear on paper exactly as it appears on the screen (with instant switching between European and American paper sizes):

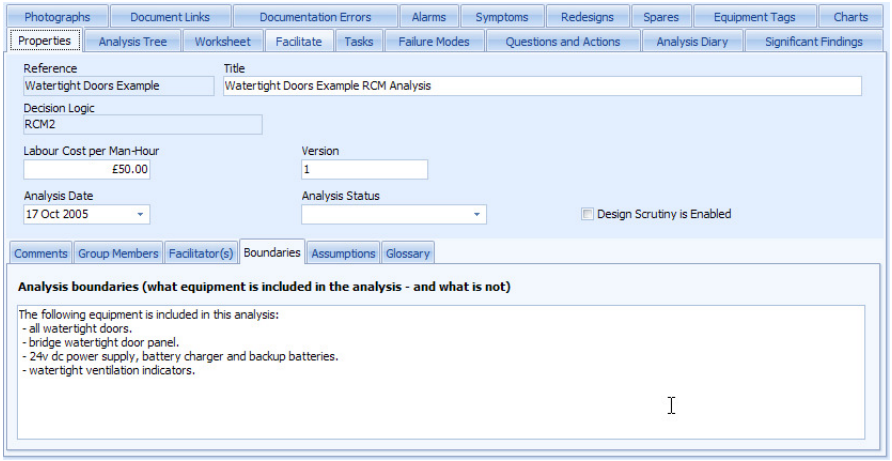


Sample Print of Analysis Tree Grid

Analysis Properties

The following information can be stored against each RCM analysis in the Basic Edition:

- ☑ Reference ID
- ☑ Title
- ☑ RCM Decision Logic used
- ☑ Labour Costs per man-hour
- ☑ Version/Revision
- ☑ Date
- ☑ Analysis Status
- ☑ Group members
- ☑ General comments
- ☑ Facilitator(s)

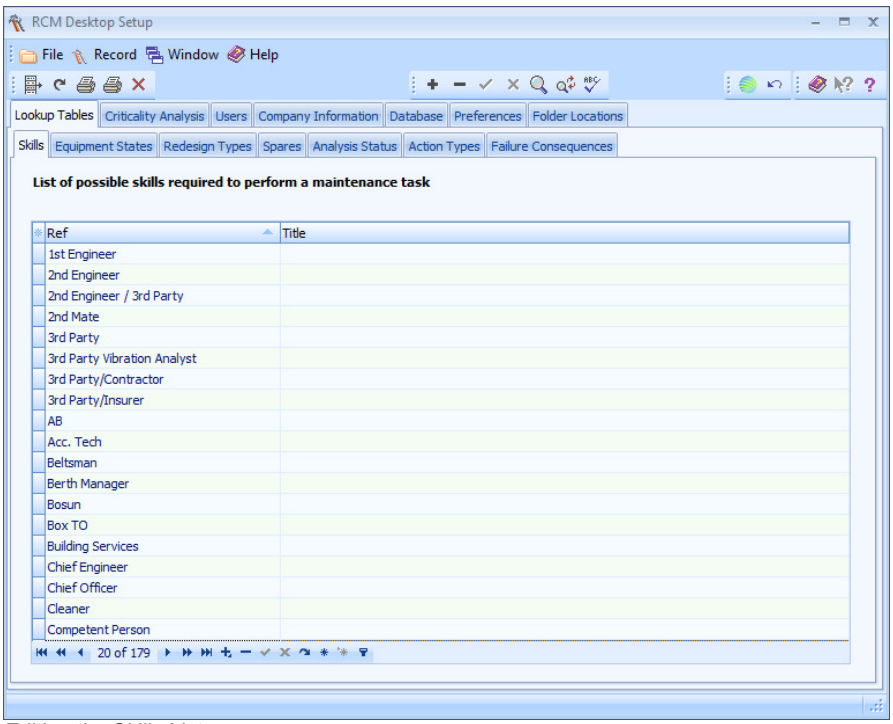


Analysis Properties tab of Analysis Editor window

Lookup Tables

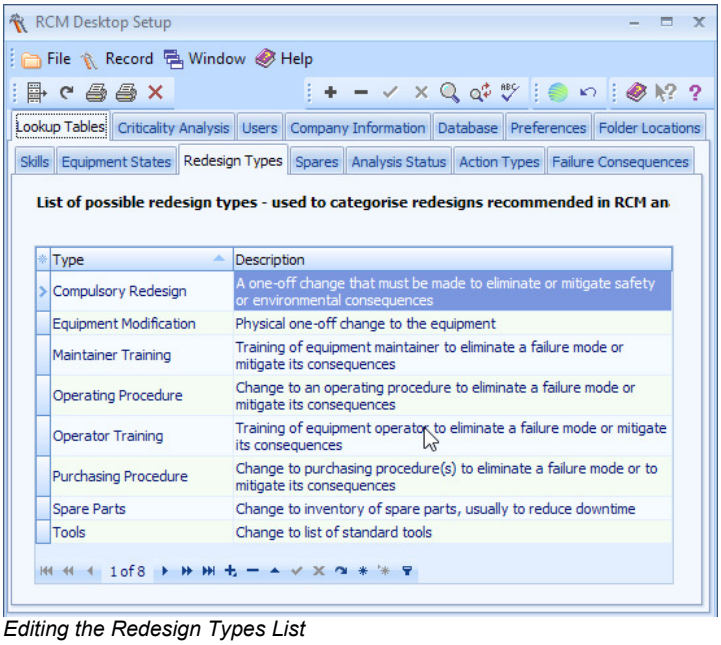
All Editions of ***RCM Desktop*** allow users to define their own lists of frequently-used items in lookup tables. The Basic Edition allows the following lists.

Skills List – is used to populate a drop-down list for specifying who should perform a maintenance Task. This can later be used to group Tasks by the skill required.



Editing the Skills List

Redesign Types – is used to populate a drop-down list for specifying the type of each Redesign. This can then be used to group Redesigns by type.



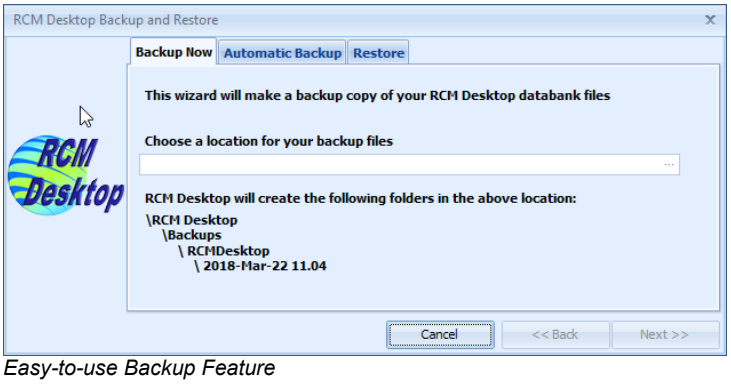
Editing the Redesign Types List

Backup and Restore

On multi-user systems, it is assumed that existing company network server backup routines will provide adequate data protection.

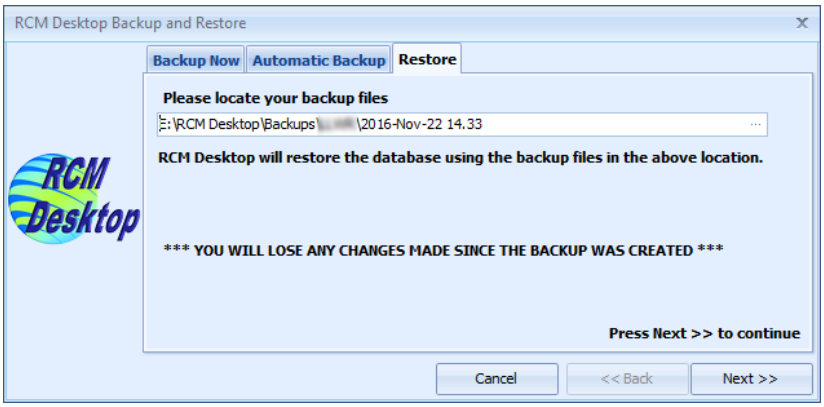
On single-user systems, ***RCM Desktop*** makes it very easy for users to backup the entire RCM database to any available device (e.g. USB memory stick, SD card, writeable CD, network drive).

Backup folders are automatically created using the database name and the date and time of creation. Users can optionally set ***RCM Desktop*** to remind them to take a backup each time the program is shut down.



Easy-to-use Backup Feature

If disaster strikes, users can easily navigate to the most recent backup folder and restore their missing data.



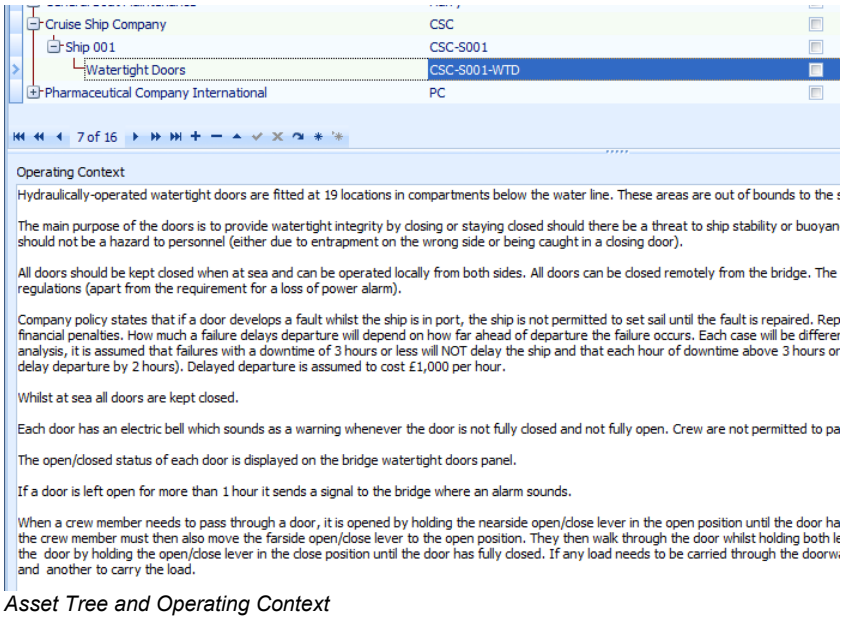
Easy-to-use Restore Feature

INTERMEDIATE EDITION

In addition to the features described above for the Basic Edition, the key features of the Intermediate Edition of ***RCM Desktop*** are explained below:

Asset Hierarchy

The Asset Hierarchy is used to link the assets to the RCM Analyses and record the Operating Contexts:



Asset Tree and Operating Context

Company Information

This is used to store your company name, logo and copyright notice so that they can appear on ***RCM Desktop*** reports.

Analysis Properties

The following additional Analysis Properties long text fields are available:

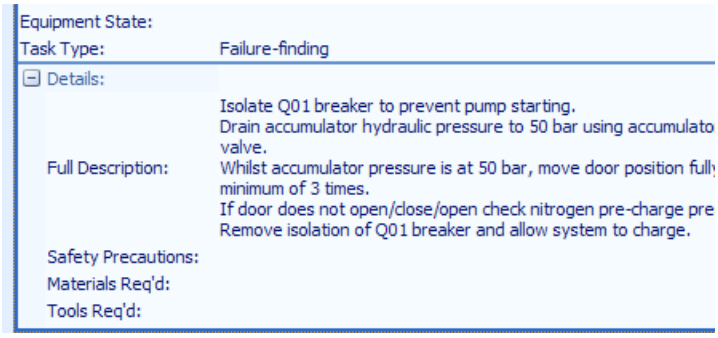
☑ Boundaries of the analysis (what equipment is covered by the analysis and what is not)

- ☑ Assumptions upon which the analysis is based
- ☑ Glossary of terms and abbreviations used throughout the analysis (useful for readers not familiar with the equipment or company jargon).

The Analysis Tree

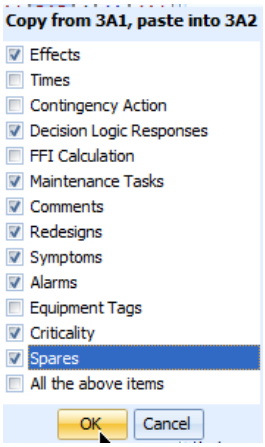
In the Intermediate Edition, the Analysis Tree grid provides access to the following additional fields/features:

- ☑ Several additional fields for fully-detailed Task descriptions



- ☑ Ability to assign Alarms and failure Symptoms to Failure Modes for the generation of fault-finding guides

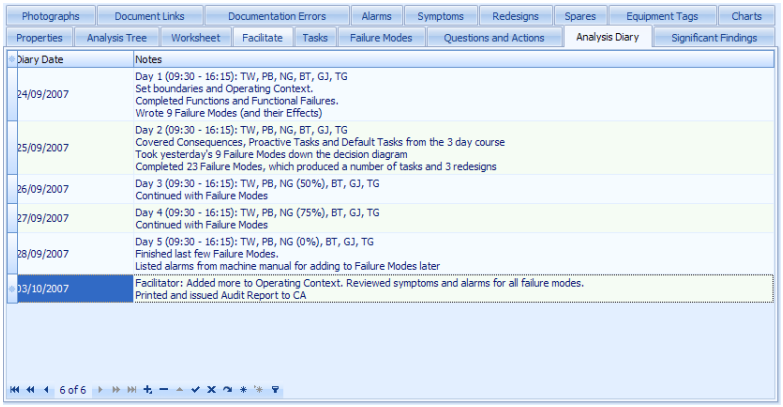
- ☑ Instantly copy from one Failure Mode to another Failure Effects, Downtime, Contingency Action, Comments, Equipment Tags and Criticality data without having to use the Windows clipboard



Analysis Diary

The Analysis Diary allows the Facilitator to keep a log of anything they wish for any given day of activity on an RCM analysis. This may include:

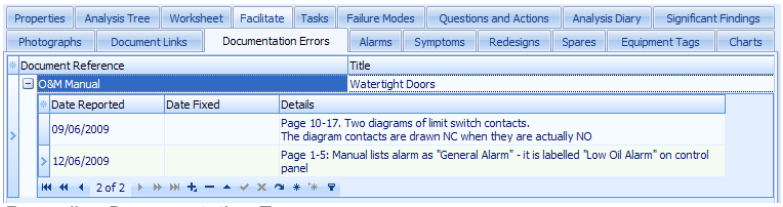
- ☑ Group members' attendance
- ☑ What was achieved during each meeting
- ☑ Notes about the meeting.



Analysis Diary entries

Documentation Errors

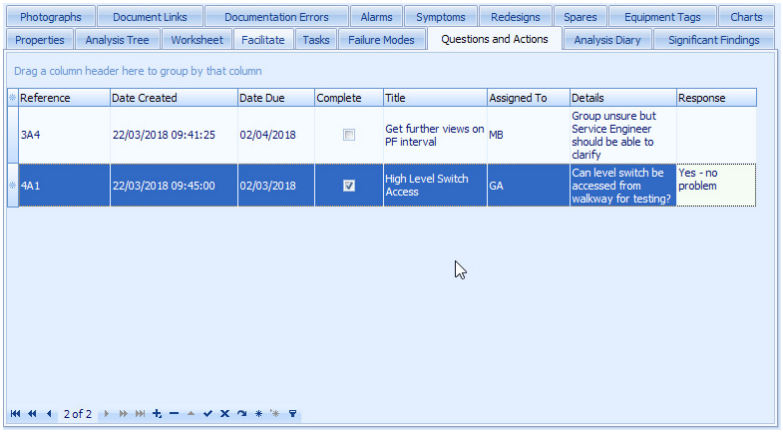
RCM analyses often reveal errors in technical documents. ***RCM Desktop*** provides a place to record such errors so they can be reported and rectified rather than forgotten.



Recording Documentation Errors

Queries and Actions

During most RCM analyses, there comes a point where some additional information is required and the facilitator needs to delegate the job of finding it to members of the analysis group. ***RCM Desktop*** enables the facilitator to record and manage all queries and group member actions.

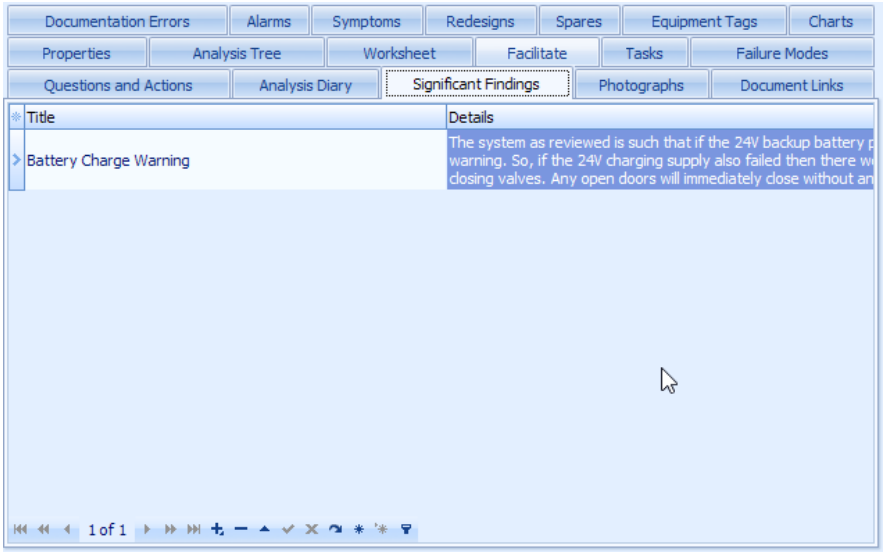


Recording Queries and Actions

RDS1801

Significant Findings

An RCM analysis group will often discover significant, interesting or even urgent facts about the asset being analysed. These often warrant higher management attention and should not be ignored or forgotten. ***RCM Desktop*** enables you to store and report on such Significant Findings.

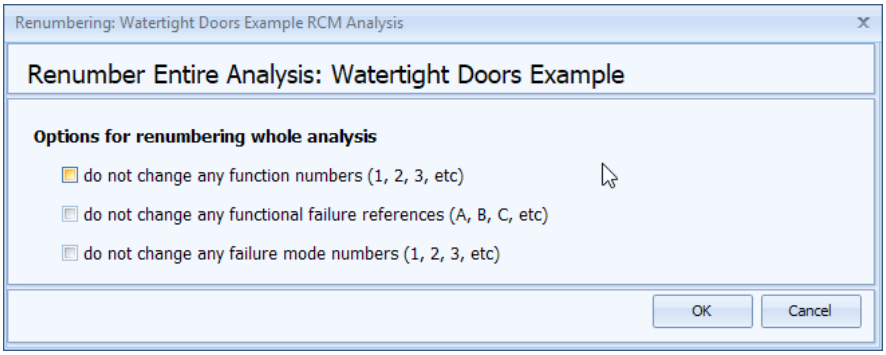


Recording Significant Findings

Renumbering

As an RCM analysis progresses, the numbering of Functions, Functional Failures and Failure Modes can become very untidy as items are moved around and/or deleted. Gaps can appear in the numbering of items.

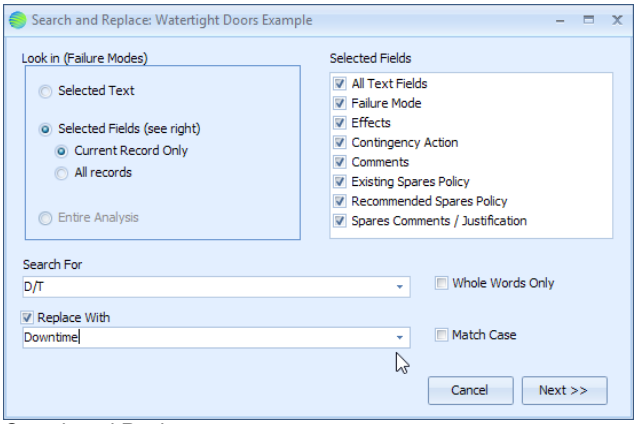
RCM Desktop allows the facilitator to renumber all or part of an analysis at any time.



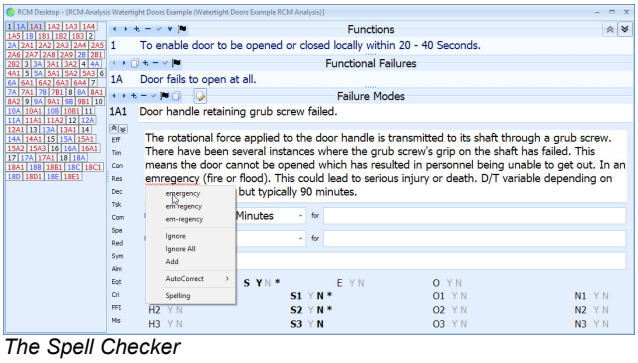
Renumbering an Analysis

Search / Replace / Spell Check

Standard search, replace and spell checking functions are available in the Intermediate Edition.



Search and Replace

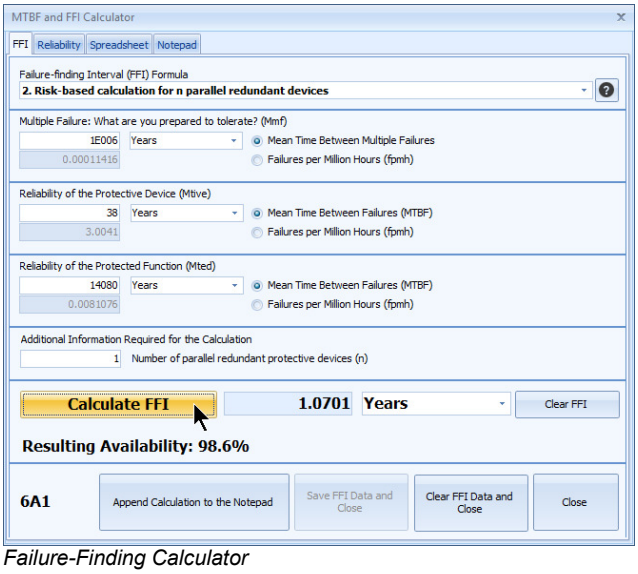


The Spell Checker

Standard Failure-Finding Calculations

The two most frequently used failure-finding interval formulae are available in the Intermediate Edition.

Reliability figures can be entered either as Failures per Million Hours (fpmh) or as Mean Time Between Failures (MTBF) using any time unit.

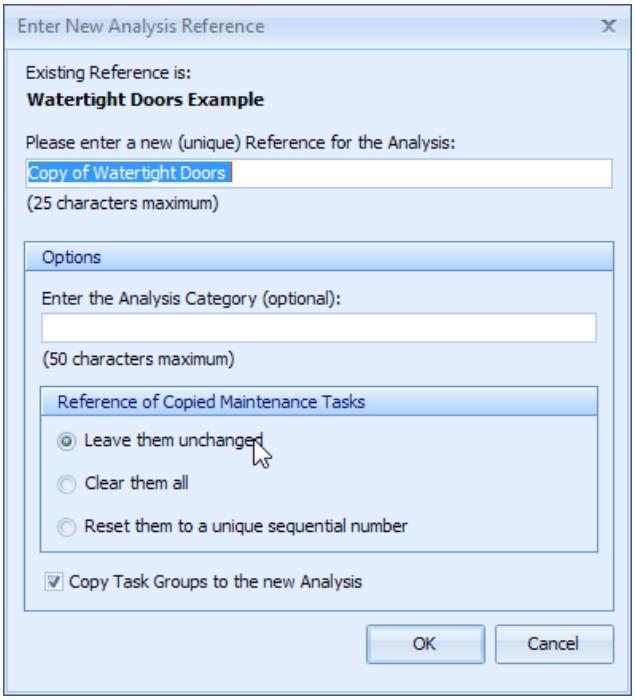


Failure-Finding Calculator

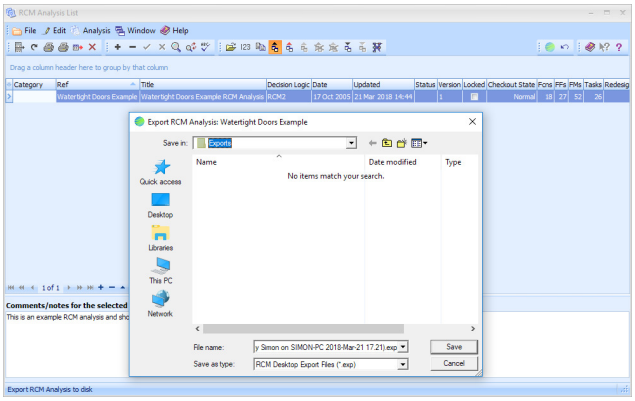
Copy / Export / Import Analyses

Individual analyses can be:

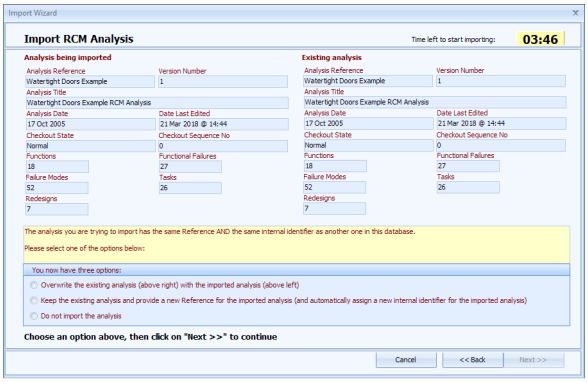
☑ Copied within the same database



☑ Exported to disk for later import to another database



☑ Imported from another database

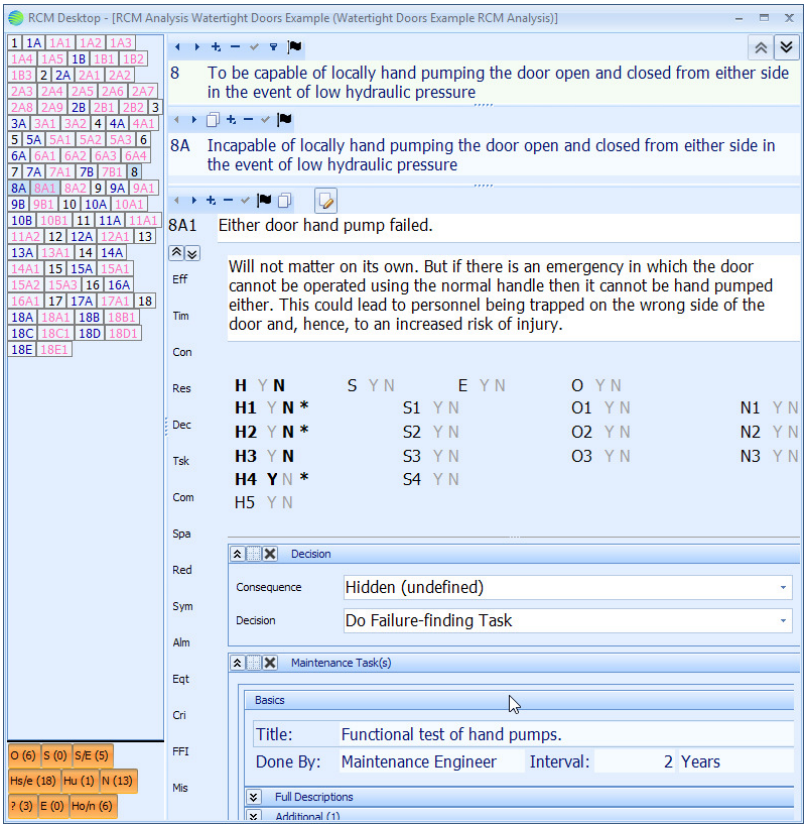


ADVANCED EDITION

In addition to the features described above for the Intermediate Edition, the key features of the Advanced Edition of ***RCM Desktop*** are explained below:

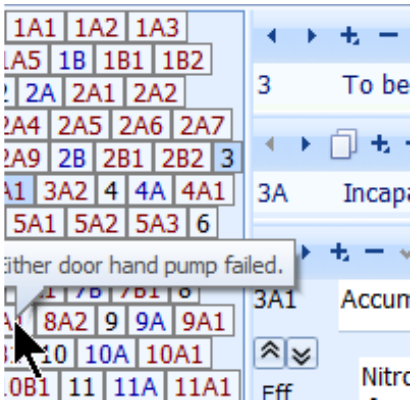
Facilitator View

The most significant feature of the Advanced Edition of ***RCM Desktop*** is the "Facilitator View". This is actually not a single feature, but an entire group of features dedicated to maximising facilitator productivity.



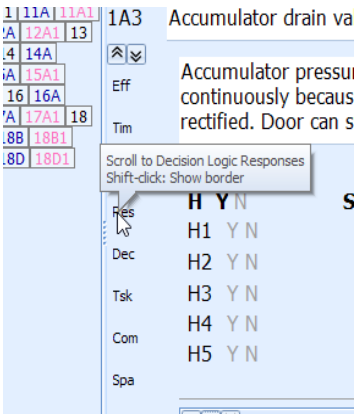
The Facilitator View

Everything that can be recorded about any given Failure Mode is instantly accessible, all within a single window.



Easy Navigation

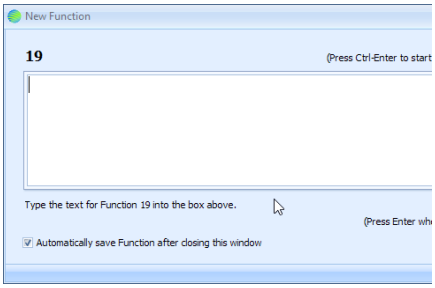
The left hand side of the Facilitate Tab contains buttons for all Functions, Functional Failures and Failure Modes, allowing instant navigation to any part of an RCM analysis.



Optional Panels

The Failure Mode area in the Facilitate Tab is split in a number of sub-panels.

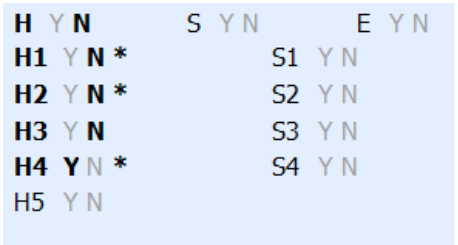
Each sub-panel can easily be shown or hidden so that only those items that are regularly used by the facilitator actually appear on the screen.



Rapid Data Entry

Keyboard shortcuts help with entering data very quickly.

For example, entering a large number of Functions is simply a matter of repeating the following sequence as many times as required:
*<press **Ins**> <type the function text> <press **Enter**>*

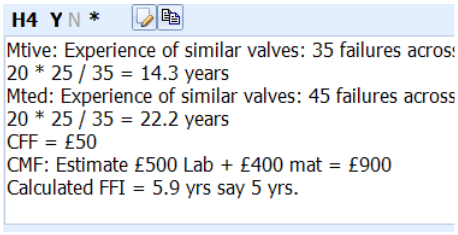


Task Selection Logic Responses

Recording the group's responses to the Task Selection/Decision Logic questions is easy.

The question reference IDs are laid out on screen in the same positions as drawn in the Task Selection Logic editor regardless of which Decision Logic is used.

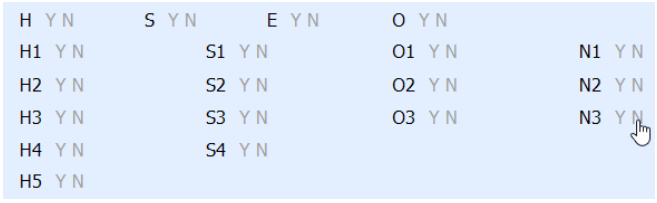
The facilitator clicks on the "Y" or "N" for the questions that he asks. The response is highlighted in bold.



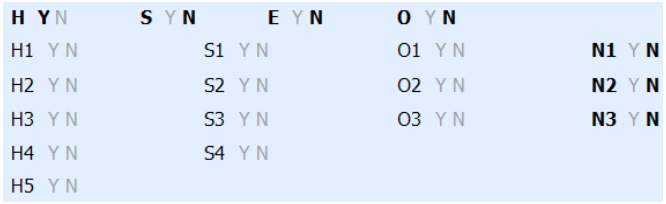
To record a set of comments against a question the facilitator simply clicks on the question's reference and starts typing.

Go To Target

An experienced facilitator with an experienced analysis group will frequently know the decision for certain failure modes and not need to waste time in discussion or detailed record keeping.

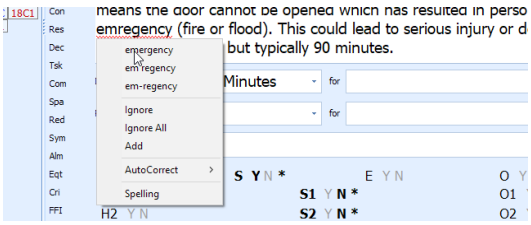


The Advanced Edition allows the Facilitator to double click on the Y or N for the task selection logic question where the failure mode "ends up". The correct responses to all the previous questions are automatically entered.



"Live" Spell Checker

Just as in any modern word processor, the Advanced Edition will highlight incorrectly spelled words with a red "squiggly".



Live Spell Checking

Auto Text

This is a major time-saving feature. Facilitators often need to use the same phrases over and over again which can be laborious to type in full. The Advanced Edition allows the user to set up abbreviations for frequently used phrases.

Whenever the abbreviation is typed…

21A1 Evaporator roof panel secondary restraint failed

wnm

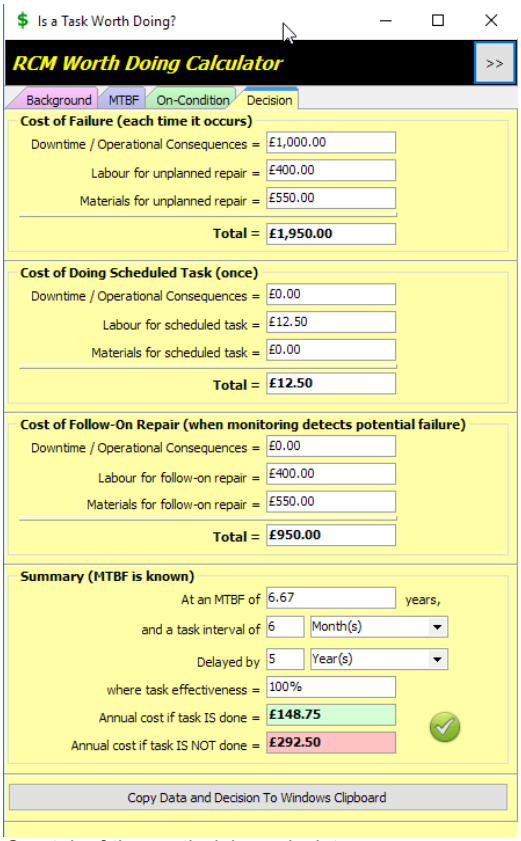
…the ***RCM Desktop*** immediately replaces it with the specified text:

21A1 Evaporator roof panel secondary restraint failed

Will not matter if it occurs on its own. But, if some other failure also occurs

Worth Doing Calculator

The Advanced Edition includes a versatile "worth-doing" calculator to assist with calculating whether or not tasks for failures with economic consequences are worth doing.

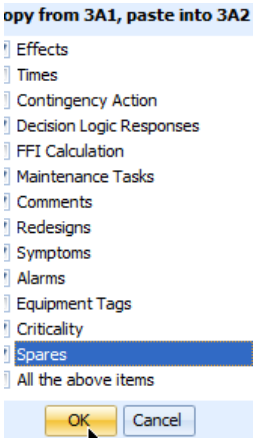


One tab of the worth-doing calculator

It can even perform the calculation "in reverse" – this allows the facilitator to calculate how bad the failure MTBF needs to be in order to make the task worth doing. This is extremely useful when the MTBF is not known accurately.

"As 1A1"

Facilitators often find that the documentation relating to one Failure Mode is extremely similar to another (especially if they are under the same Functional Failure).



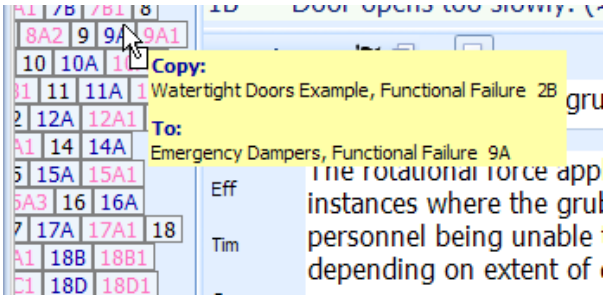
The Advanced Edition enables the Facilitator to copy instantly as much as is necessary from one Failure Mode to another without having to use the Windows clipboard or having to navigate to the other Failure Mode.

This saves a lot of time and minimises copying errors.

Drag and Drop

RCM facilitators often need to copy information from one analysis to another or to rearrange information within an analysis.

The Drag and Drop feature of the Advanced Edition makes this a very simple process.

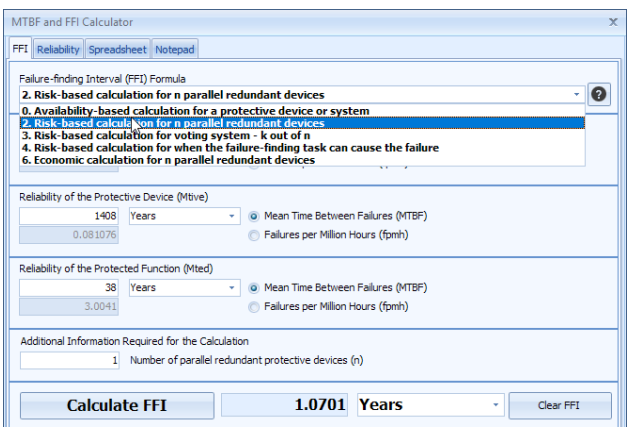


Dragging a Functional Failure

In the example above, a Functional Failure is being dragged from one analysis to another. In an instant, this creates a copy of that Functional Failure *and all its Failure Modes and Decisions* in the target analysis.

Advanced Failure-Finding Calculations

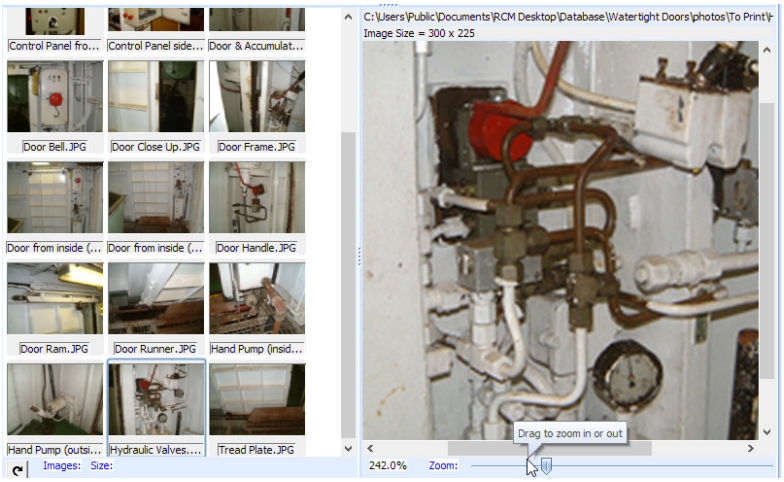
Two additional failure-finding formulae are available in the Advanced Edition.



Document & Photo Links

The Advanced Edition permits the user to store links to external documents such as drawings, user guides, technical manuals, etc. Double-clicking on any link will open that document in the associated application (assuming it is installed and available).

Links to folders containing photographs can also be stored. ***RCM Desktop*** displays resizable thumbnails of the photographs in the folder and allows the user to display any selected photograph and to zoom in on any part of it.

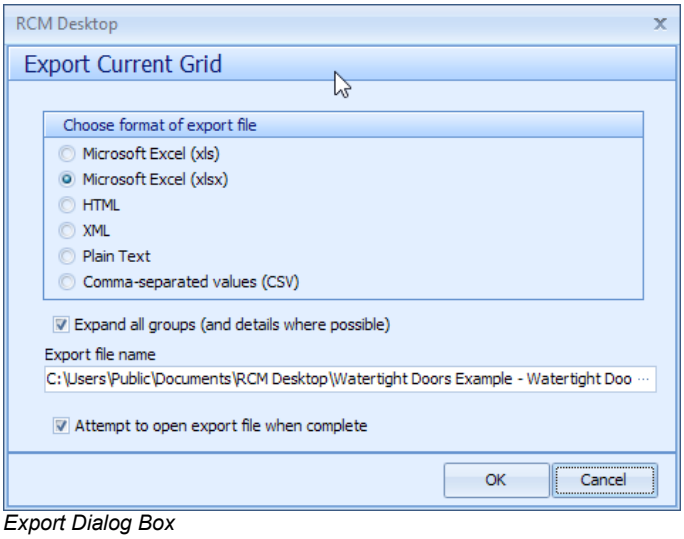


The Photograph Viewer

This is another great time saver. A set of detailed digital photographs dramatically cuts down on analysis group visits to the equipment.

Export Data Grids

Much of the information stored in the ***RCM Desktop*** database is presented in a powerful and highly customizable spreadsheet-like grid. Most grids can be exported in Excel, HTML, XML and CSV formats.

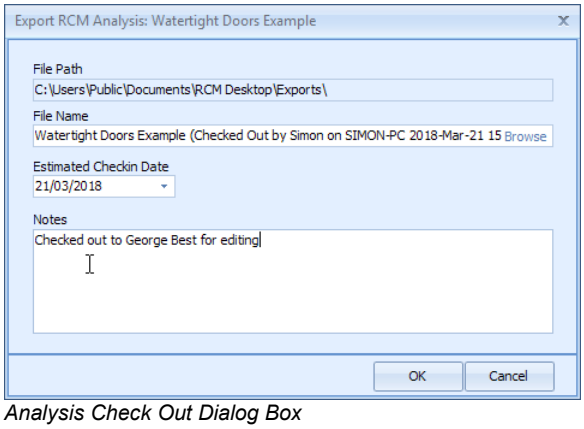


Export Dialog Box

Check-Out and Check-In

For mobile facilitators who hold analysis meetings in various locations, the Advanced Edition has a unique Check-Out / Check-In Feature.

The facilitator can Check Out an analysis from the company's Master RCM Database onto their laptop. They can then work on the analysis during the analysis meetings at a remote location. When they return to base, the analysis can be Checked In again to the Master database.



Analysis Check Out Dialog Box

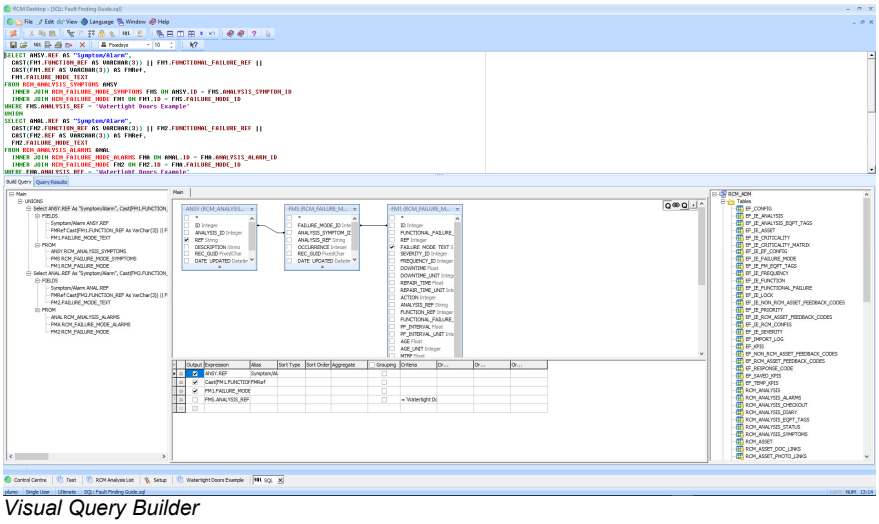
While an analysis is Checked Out, it can still be opened in the Master Database, but it will be read-only. This prevents any conflicts when it is subsequently Checked In by the facilitator

ULTIMATE EDITION

In addition to the features described above for the Advanced Edition, the key features of the ***RCM Desktop*** Ultimate Edition are explained below.

SQL Query Builder

For users who require full SQL access to their RCM database, ***RCM Desktop*** Ultimate Edition has a visual query builder similar to that in MS Access.



Visual Query Builder

Users can visually build queries and save them to disk for later retrieval. All standard SQL constructs are available, including sorting, grouping, field and table aliases, sub-queries, derived tables and unions.

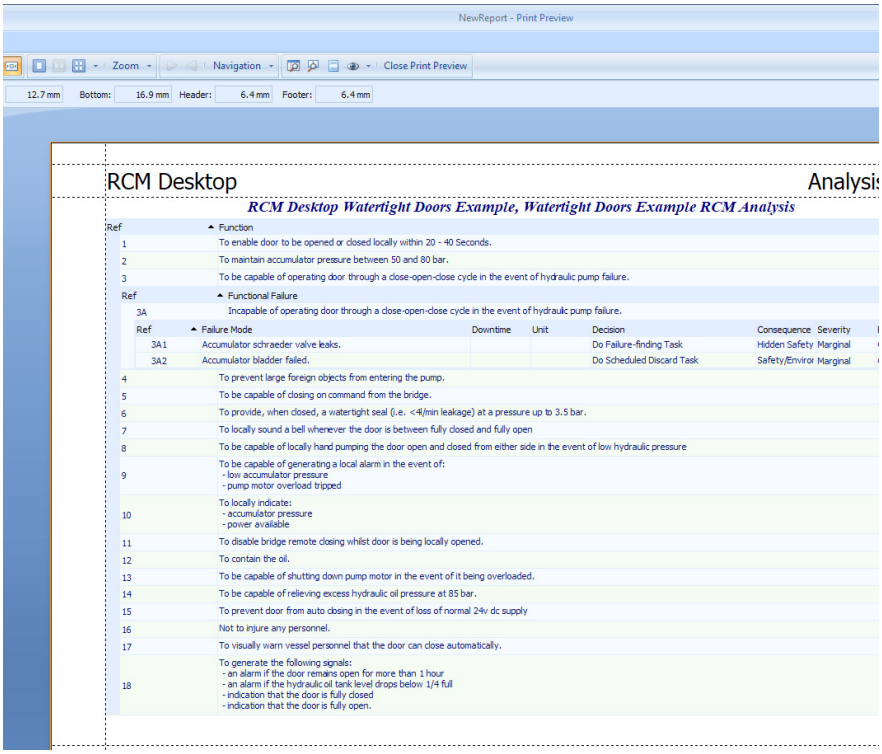
Query results can be viewed in the ***RCM Desktop*** customisable grid and then either be printed or exported to Excel, HTML. XML or CSV formats.

PRINTED REPORTS

RCM Desktop can print out both fixed-format reports and reports based on the current contents and layout of any data grid or tree.

Tree and Grid Reports

Data trees and grids can be printed at any time and will appear on paper exactly as they appear on the screen (with instant switching between European and American paper sizes):



Sample Print of Analysis Tree Grid

Users have full control over the appearance of tree and grid reports, including the ability to customise content, layout, titles, headers, footers, page size, orientation, margins and scaling.

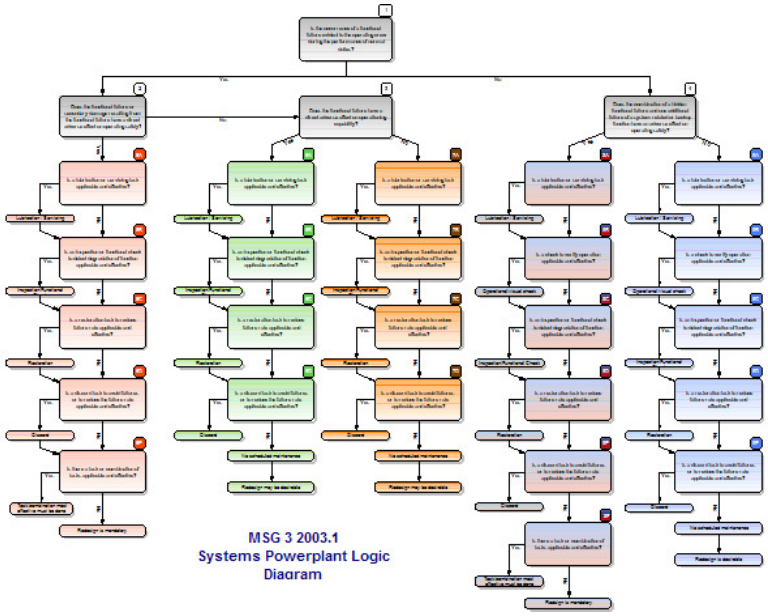
Individual tree and grid reports can be saved within the ***RCM Desktop*** database for later retrieval.

Fixed Format Reports

A number of reports which have a fixed format and layout are available in ***RCM Desktop***, although several of them have customisable content.

Decision Logic

This report prints out any Decision Logic exactly as it is drawn on the screen in the Task Decision Logic Editor.



Decision Logic Print

Function List

This report prints the list of functions for the current, open analysis.

RCM Analysis Function List

Watertight Doors Example RCM Analysis

© RCM Desktop

RCM Desktop

1 To enable door to be opened or closed locally within 20 - 40 Seconds.

2 To maintain accumulator pressure between 50 and 80 bar.

3 To be capable of operating door through a close-open-close cycle in the event of hydraulic pump failure.

4 To prevent large foreign objects from entering the pump.

5 To be capable of closing on command from the bridge.

6 To provide, when closed, a watertight seal (i.e. <4l/min leakage) at a pressure up to 3.5 bar.

7 To locally sound a bell whenever the door is between fully closed and fully open

8 To be capable of locally hand pumping the door open and closed from either side in the event of low hydraulic pressure

9 To be capable of generating a local alarm in the event of:
- low accumulator pressure
- pump motor overload tripped

10 To locally indicate:
- accumulator pressure
- power available

11 To disable bridge remote closing whilst door is being locally opened.

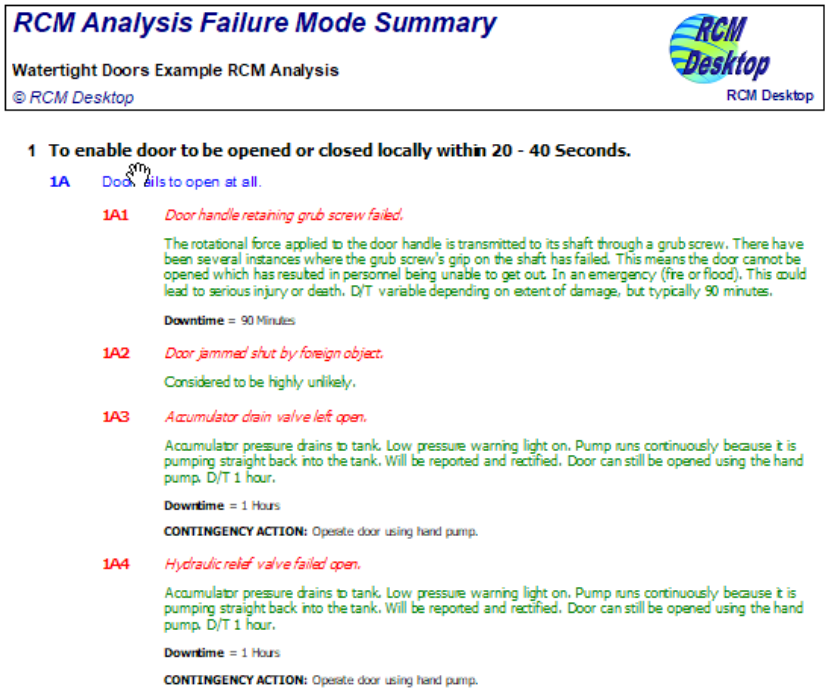
12 To contain the oil.

13 To be capable of shutting down pump motor in the event of it being overloaded.

14 To be capable of relieving excess hydraulic oil pressure at 85 bar.

Failure Mode Summary Report

This report prints the functions, corresponding functional failures and basic information for each corresponding failure mode: failure effects, downtime, repair time, comments.



RCM Analysis Failure Mode Summary

Watertight Doors Example RCM Analysis

© RCM Desktop

RCM Desktop

1 To enable door to be opened or closed locally within 20 - 40 Seconds.

1A Door fails to open at all.

1A1 *Door handle retaining grub screw failed.*

The rotational force applied to the door handle is transmitted to its shaft through a grub screw. There have been several instances where the grub screw's grip on the shaft has failed. This means the door cannot be opened which has resulted in personnel being unable to get out. In an emergency (fire or flood). This could lead to serious injury or death. D/T variable depending on extent of damage, but typically 90 minutes.

Downtime = 90 Minutes

1A2 *Door jammed shut by foreign object.*

Considered to be highly unlikely.

1A3 *Accumulator drain valve left open.*

Accumulator pressure drains to tank. Low pressure warning light on. Pump runs continuously because it is pumping straight back into the tank. Will be reported and rectified. Door can still be opened using the hand pump. D/T 1 hour.

Downtime = 1 Hours

CONTINGENCY ACTION: Operate door using hand pump.

1A4 *Hydraulic relief valve failed open.*

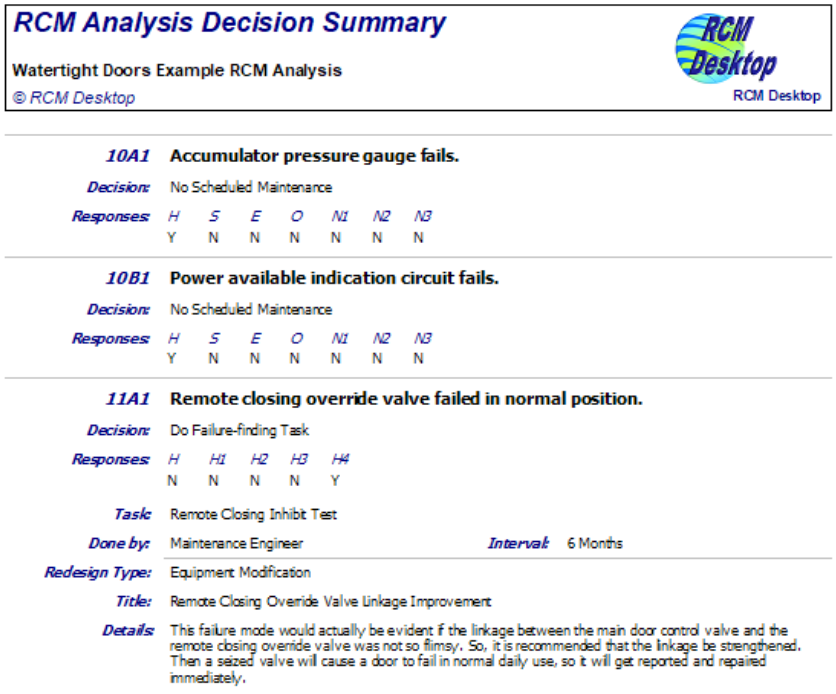
Accumulator pressure drains to tank. Low pressure warning light on. Pump runs continuously because it is pumping straight back into the tank. Will be reported and rectified. Door can still be opened using the hand pump. D/T 1 hour.

Downtime = 1 Hours

CONTINGENCY ACTION: Operate door using hand pump.

Decision Summary Report

Prints a summary of the decision made for each failure mode, including: all decision logic responses, any maintenance tasks and any redesigns.



RCM Analysis Decision Summary

Watertight Doors Example RCM Analysis

© RCM Desktop

RCM Desktop

10A1 **Accumulator pressure gauge fails.**

Decision: No Scheduled Maintenance

Responses:

H	S	E	O	N1	N2	N3
Y	N	N	N	N	N	N

10B1 **Power available indication circuit fails.**

Decision: No Scheduled Maintenance

Responses:

H	S	E	O	N1	N2	N3
Y	N	N	N	N	N	N

11A1 **Remote closing override valve failed in normal position.**

Decision: Do Failure-finding Task

Responses:

H	H1	H2	H3	H4
N	N	N	N	Y

Task: Remote Closing Inhibit Test

Done by: Maintenance Engineer ***Interval:*** 6 Months

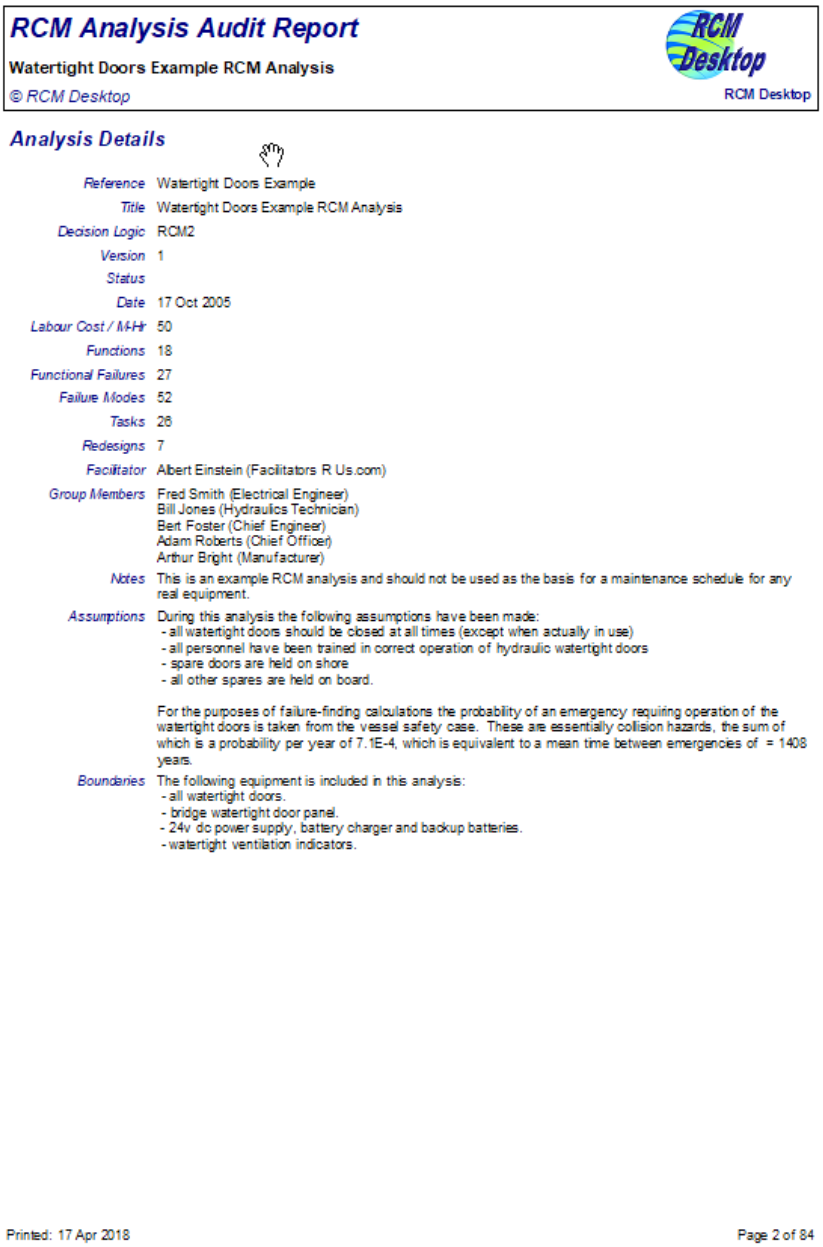
Redesign Type: Equipment Modification

Title: Remote Closing Override Valve Linkage Improvement

Details: This failure mode would actually be evident if the linkage between the main door control valve and the remote closing override valve was not so flimsy. So, it is recommended that the linkage be strengthened. Then a seized valve will cause a door to fail in normal daily use, so it will get reported and repaired immediately.

Audit Report

This report prints out everything that exists about an analysis in a single operation.



RCM Analysis Audit Report

Watertight Doors Example RCM Analysis

© RCM Desktop

RCM Desktop

Analysis Details

Reference	Watertight Doors Example
Title	Watertight Doors Example RCM Analysis
Decision Logic	RCM2
Version	1
Status	
Date	17 Oct 2005
Labour Cost / M-Hr	50
Functions	18
Functional Failures	27
Failure Modes	52
Tasks	26
Redesigns	7
Facilitator	Albert Einstein (Facilitators R Us.com)
Group Members	Fred Smith (Electrical Engineer) Bill Jones (Hydraulics Technician) Bert Foster (Chief Engineer) Adam Roberts (Chief Officer) Arthur Bright (Manufacturer)
Notes	This is an example RCM analysis and should not be used as the basis for a maintenance schedule for any real equipment.
Assumptions	During this analysis the following assumptions have been made: - all watertight doors should be closed at all times (except when actually in use) - all personnel have been trained in correct operation of hydraulic watertight doors - spare doors are held on shore - all other spares are held on board. For the purposes of failure-finding calculations the probability of an emergency requiring operation of the watertight doors is taken from the vessel safety case. These are essentially collision hazards, the sum of which is a probability per year of 7.1E-4, which is equivalent to a mean time between emergencies of = 1408 years.
Boundaries	The following equipment is included in this analysis: - all watertight doors. - bridge watertight door panel. - 24v dc power supply, battery charger and backup batteries. - watertight ventilation indicators.

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In the Failure Mode section of the report, every detail recorded about the failure mode in the database is printed in one place. This allows an auditor to review each failure mode easily and quickly, one at a time.

It also means that the report can be used to reference and understand everything about a failure mode very quickly.

RCM Analysis Audit Report

Watertight Doors Example RCM Analysis

RCM Desktop

2A8 Hydraulic oil degraded.

Function
To maintain accumulator pressure between 50 and 80 bar.

Functional Failure
Accumulator pressure falls below 50 Bar.

Failure Effects
Hydraulic oil properties will degrade over time. If nothing is done it will eventually lead to accelerated pump wear and ultimately pump failure. D/T to replace oil and repair secondary damage 12 hours.

Downtime 12 Hours

Contingency Action
Operate door with hand pump.

Risk/Criticality Assessment

Inherent Risk/Criticality		*Revised Risk/Criticality*
Severity	III: Marginal	*Severity*
Frequency	D: Remote	*Frequency*
Risk/Criticality	3: Criticality 3	*Risk/Criticality*

RCM Decision (and any Supporting Comments)

Consequence Operational

Action Do Scheduled Restoration Task

H Y
S N
E N
O Y
O1 N Oil analysis is possible but not thought to be worthwhile on such a small system. It was considered to be better to 're-condition' the oil using a filtering unit.
O2 Y "Life" of oil is believed to be in excess of 2 years. A filtering task was considered:

WORTH DOING CALCULATION
MTBF estimated to be 2.5 years.

COST OF FAILURE (each time it occurs):
Cost of downtime / operational consequences caused by the failure = 9 Hour(s) @ £1,000.00 / Hour = £9,000.00.
Cost of labour for unplanned repair (including any secondary damage) = 18 Hour(s) @ £50.00 / Hour = £900.00.
Materials List:
5 * Hydraulic Oil at £10.00 each = £50.00
1 * Hydraulic Pump at £1,500.00 each = £1,500.00
Materials Total = £1,550.00

Total Cost of one Failure = £9,000.00 + £900.00 + £1,550.00 = £11,450.00.

COST OF SCHEDULED TASK (each time it is performed):
Cost of downtime to do the task = £0.00.
Cost of labour for the task = 1 Hour(s) @ £50.00 / hour = £50.00.
1 * Hydraulic Oil Analysis at £50.00 each = £50.00

Total Cost of doing the task once = £0.00 + £50.00 + £50.00 = £100.00.

Given MTBF of 2.50 years and task interval of 2 Year(s):
Annual cost if task IS done = (£100.00 / 2 Year(s)) + (£0.00 / 0.00 yrs) = £50.00 per year
Annual cost if task IS NOT done = (£11,450.00 / 2.50 yrs) = £4,580.00 per year

So, task IS worth doing.

Maintenance Task(s) to Manage this Failure Mode

Task Number	Task for 2A8	*Task Type*	Scheduled Restoration
Interval	2 Years		
Done By	Maintenance Engineer	*Priority*	3: Priority 3
Title	Hydraulic Oil Cleaning		
Description	Filter water tight door hydraulic oil using portable filtering unit. Take a sample of oil for analysis. Arrange for oil change if adverse results obtained.		

List of Alarms (used for Fault-Finding Guide)

[Low accumulator pressure alarm]

List of Symptoms (used for Fault-Finding Guide)

[Door fails to open], [Door operates slowly]

On completion of the analysis, this report becomes an excellent reference document for the analysed equipment.

SINGLE AND MULTI-USER VERSIONS

RCM Desktop is available in single-user and multi-user versions (except the basic edition which is only available as a single-user version).

Single-user version

Only one user may access the database at any time. This version is intended for installation on stand-alone personal computers for use by a single facilitator.

Multi-user version

This version is intended for installation on a network and allows multiple users to use the system simultaneously. This means that several facilitators can work together within a consistent asset hierarchy.

RCM DESKTOP BENEFITS

RCM Desktop software has been developed to provide advanced support for the application of RCM. Unlike most software applications it has been written by professional software authors who use the software day-to-day. In short, it has been written by RCM facilitators for their own benefit and for the benefit of other facilitators. The overall philosophy behind the ***RCM Desktop*** is:

> ***"To enable the RCM Facilitator to manage efficiently all aspects of an RCM Analysis and to document it live during analysis group meetings using any RCM Task Selection Logic."***

Special attention has been paid to the role of the RCM Facilitator in order to maximise productivity (especially during analysis group meetings) with advanced ease-of-use and speed-of-use features that make ***RCM Desktop*** fast and intuitive. Productivity gains over other RCM software is impressive, typically reducing facilitator effort in documenting an RCM analysis by 50%. In particular, the software removes the need for technical typists, reams of paperwork or walls covered in flip charts.

RCM Desktop includes many features specifically designed to make it quick and easy to extract information from one analysis and incorporate it into another analysis. This massively reduces the time taken to template a new RCM analysis from one or more other analyses. With ***RCM Desktop*** templates can be created in minutes whereas using other software it can take hours.

RCM Desktop is continually being enhanced in response to

end-user requests and as technology evolves.

RCM Project Size

RCM Desktop software is available in four different editions and for single-user or multiple-user applications. In this way ***RCM Desktop*** software caters for all RCM projects and budgets ranging from a sole facilitator working alone to a team of facilitators working on a massive RCM programme.

RCM Desktop has been designed to be upwards compatible permitting upgrades from one edition to another as an RCM programme grows in size, complexity and the number of facilitators involved. End-users embarking on an RCM project can, therefore, limit their costs in the early days by purchasing the basic edition of ***RCM Desktop*** and upgrade to the intermediate or advanced editions as confidence and experience in RCM grows.

Why not Word Processors or Spreadsheets?

Many clients are tempted to document their RCM analyses using a word processor or spreadsheet or even to construct their own database application. Many of these approaches do little more than print basic information for an analysis and are, frankly, a false economy; the RCM facilitator's time would be better spent using the ***RCM Desktop*** in an RCM analysis meeting than trying to write an in-house application in a word processor, spreadsheet or database.

The ***RCM Desktop*** software has taken man-years of development to reach its current level of maturity; a 'home-grown' application will probably never offer comparable features or the time-saving facilities which come as standard in the basic edition of ***RCM Desktop*** (which are described elsewhere in this brochure). Furthermore, the flexibility of being available in different versions ensures that the ***RCM Desktop*** software is affordable regardless of the size or stage of an RCM project.

TECHNICAL SUPPORT

Included within the purchase price of the software licence is 90 days free product technical support by telephone, fax, letter or email. Beyond the 90 days, clients may enter into an annual support contract at an extra charge.

Technical support will only be provided for software-related system problems.

This support will normally be available during normal United Kingdom office hours. If one of our support consultants is not available immediately, telephone requests for assistance will usually be returned within one working day.

Updates

Updates of the software correcting any errors will be issued from time to time.

Licensees with paid-up maintenance agreements will receive such updates free of charge.

Upgrades

Upgrades to the software including feature enhancements will be issued from time to time. Licensees with current paid-up maintenance agreements will receive such upgrades at a discount from the prevailing list price.

For more information please contact

info@rcmdesktop.com

www.rcmdesktop.com

FEATURE COMPARISON TABLE

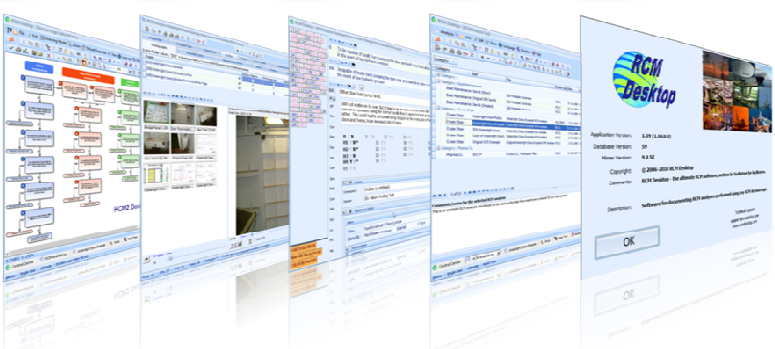
The table below shows how the features described in this brochure map into the four ***RCM Desktop*** editions.

Feature	Edition			
	Basic	Intermediate	Advanced	Ultimate
User-definable decision logic	✓	✓	✓	✓
Analysis properties: comments, facilitator, group members	✓	✓	✓	✓
Functions	✓	✓	✓	✓
Functional Failures	✓	✓	✓	✓
Failure Modes	✓	✓	✓	✓
Basic task descriptions	✓	✓	✓	✓
Decision diagram supporting comments	✓	✓	✓	✓
Function list report	✓	✓	✓	✓
Failure mode summary report	✓	✓	✓	✓
Decision summary report	✓	✓	✓	✓
Instant copy: failure effects	✓	✓	✓	✓
Worksheet View	✓	✓	✓	✓
Analysis properties: Assumptions, boundaries, glossary	✗	✓	✓	✓
Analysis diary	✗	✓	✓	✓
Track analysis status	✗	✓	✓	✓
Asset hierarchy	✗	✓	✓	✓
All-in-one formal audit report	✗	✓	✓	✓
Company information (including logo)	✗	✓	✓	✓
Copy entire analysis	✗	✓	✓	✓
Record documentation errors	✗	✓	✓	✓
Failure-finding formulae 2 and 6	✗	✓	✓	✓
Instant copy: contingency action, criticality, equipment tags, times	✗	✓	✓	✓
Import/export analyses	✗	✓	✓	✓
Record queries and actions	✗	✓	✓	✓
Renumbering functions, functional failures and failure modes	✗	✓	✓	✓
Basic search and replace	✗	✓	✓	✓
Record significant findings	✗	✓	✓	✓
Comprehensive task descriptions	✗	✓	✓	✓
Basic spell check	✗	✓	✓	✓
User management (multi-user only)	✗	✓	✓	✓

Continued on next page…

Feature	Edition			
	Basic	Intermediate	Advanced	Ultimate
Special advanced facilitator view	✗	✗	✓	✓
Advanced search and replace	✗	✗	✓	✓
Advanced spell check	✗	✗	✓	✓
Analysis checkout / check in	✗	✗	✓	✓
Decision diagram "go to target"	✗	✗	✓	✓
Instant copy: alarms, symptoms, decision logic responses, redesigns, maintenance tasks	✗	✗	✓	✓
Failure-finding formulae 3 and 4	✗	✗	✓	✓
Live spell check and auto-correction	✗	✗	✓	✓
Links to photos and drawings	✗	✗	✓	✓
Links to external documents	✗	✗	✓	✓
Export maintenance tasks	✗	✗	✓	✓
Worth-doing calculator	✗	✗	✓	✓
User-defined Reports	✗	✗	✓	✓
Customised Built-in Reports	✗	✗	✓	✓
Report Writer	✗	✗	✗	✓
Full SQL access to RCM database	✗	✗	✗	✓
Interactive SQL Query Builder	✗	✗	✗	✓

The Ultimate RCM Software...



...written by facilitators for facilitators.

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